

# ● ARCHITECTS' REFERENCE



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STRAN-STEEL CORPORATION

A UNIT OF NATIONAL STEEL



CORPORATION

Ecorse, Detroit 29, Michigan



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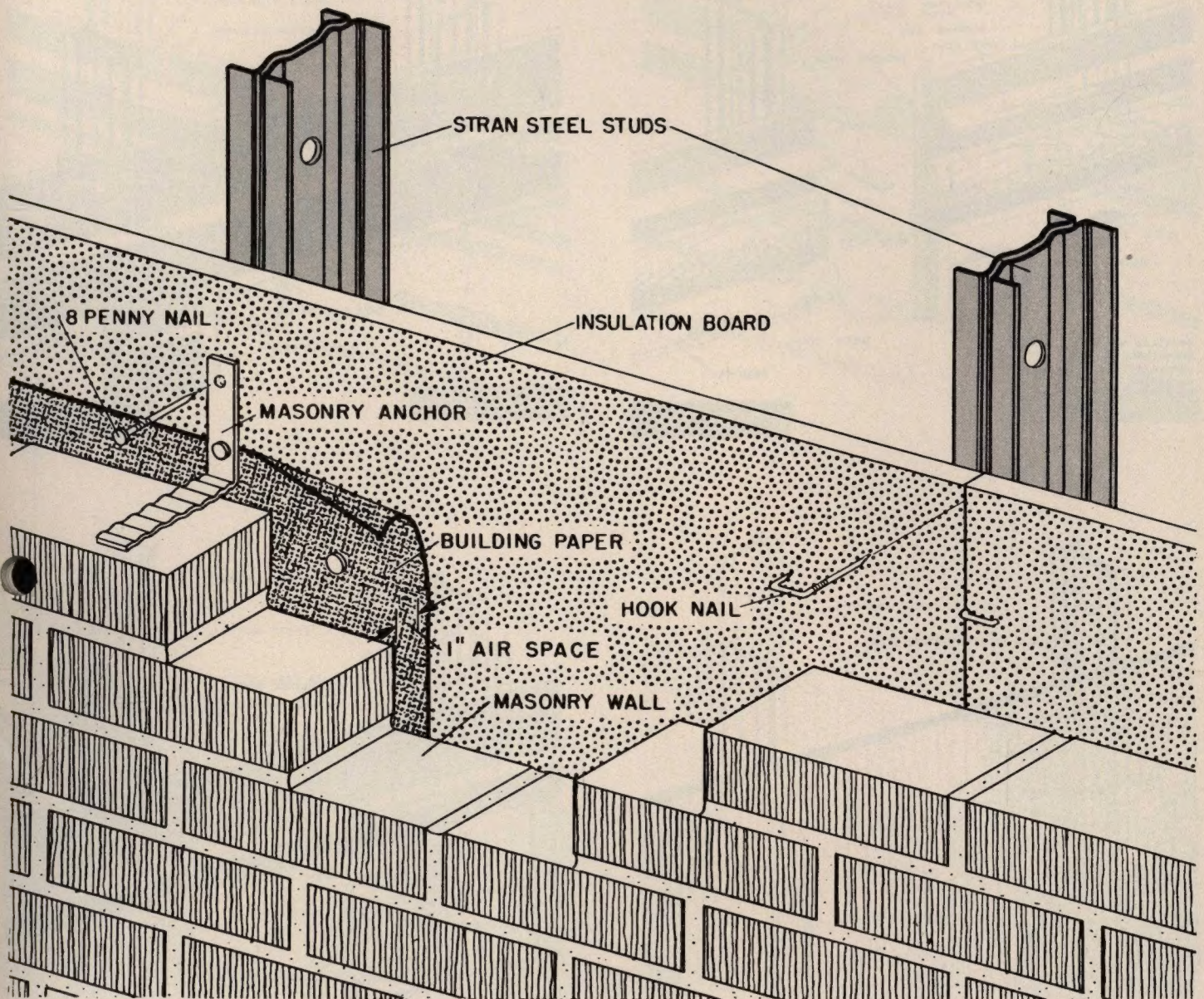
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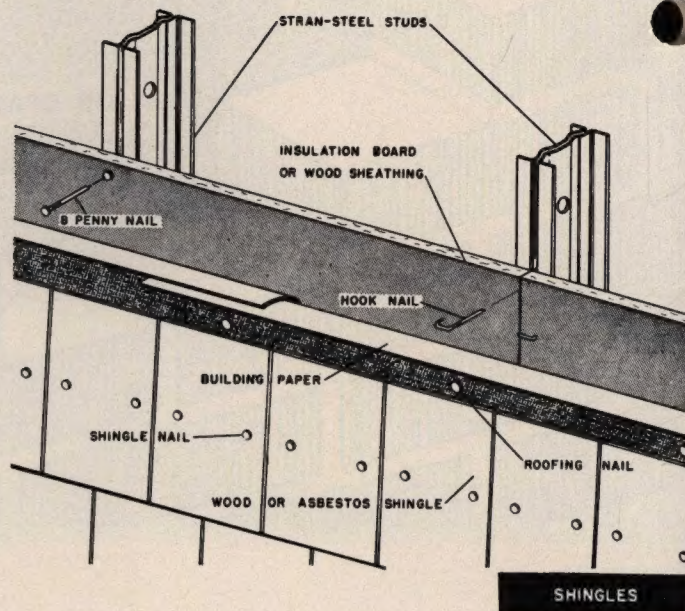
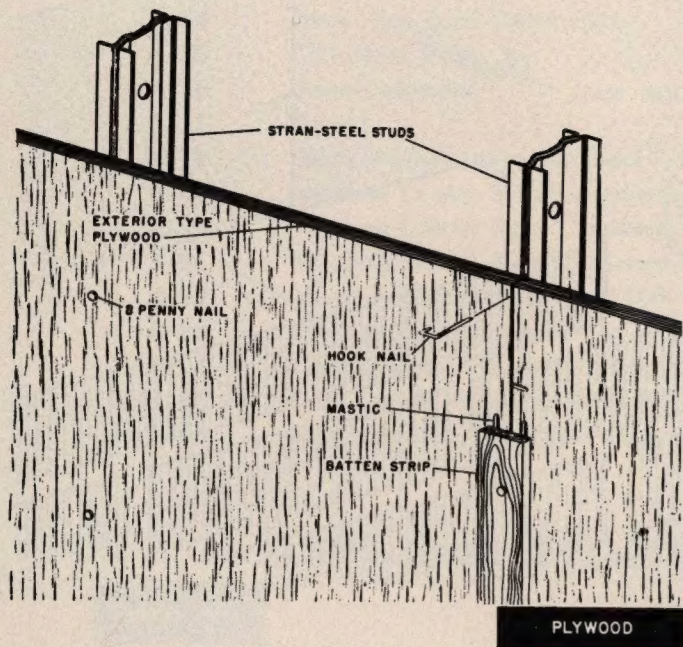
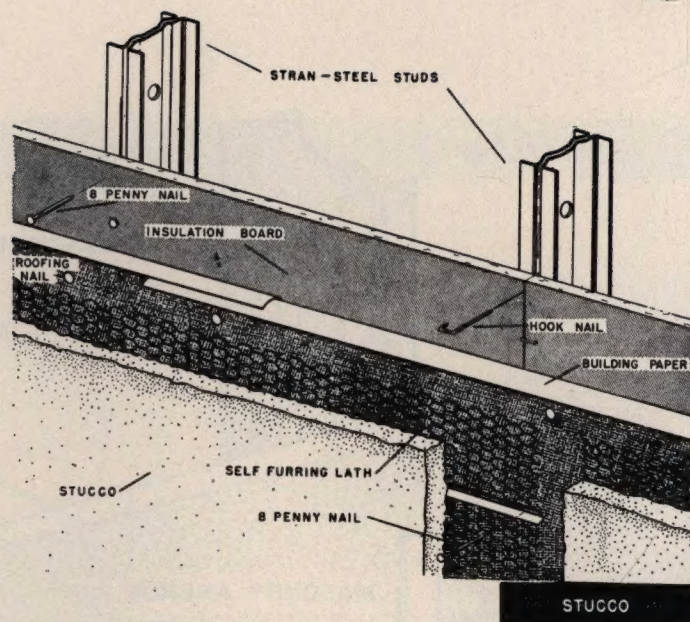
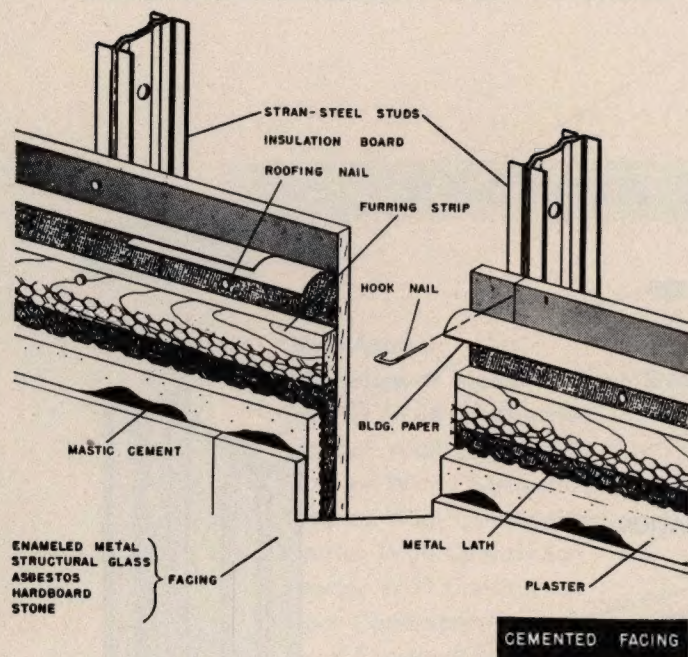
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**EXTERIOR  
WALL  
CONSTRUCTION**



# ARCHITECTURAL DETAILS



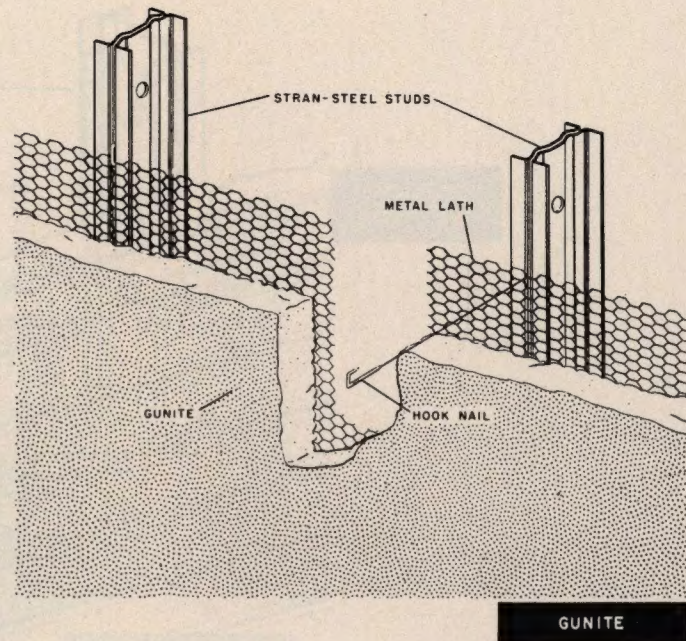
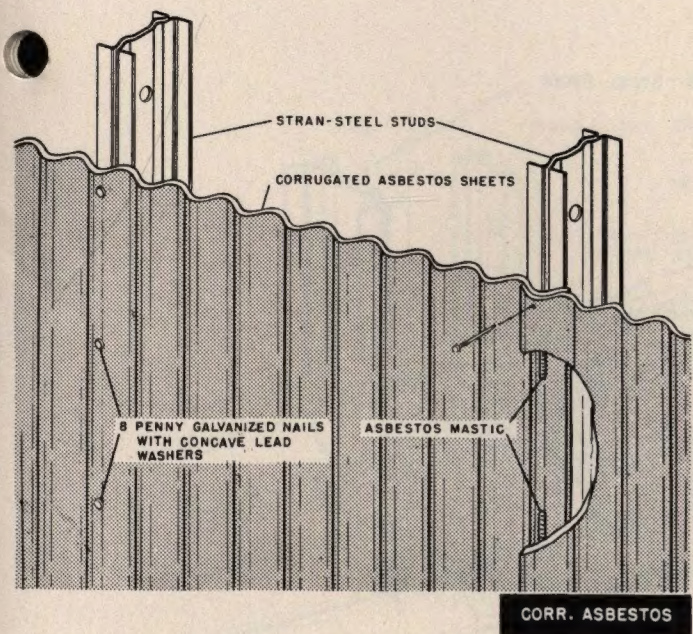
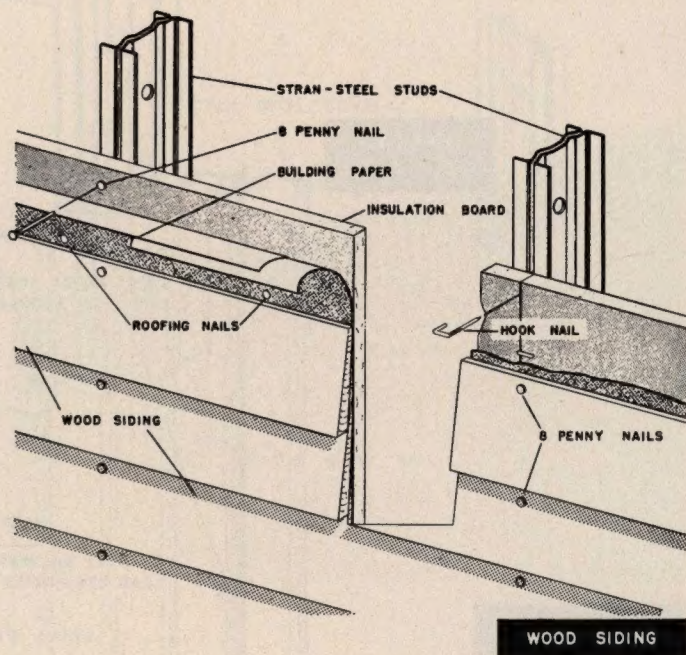
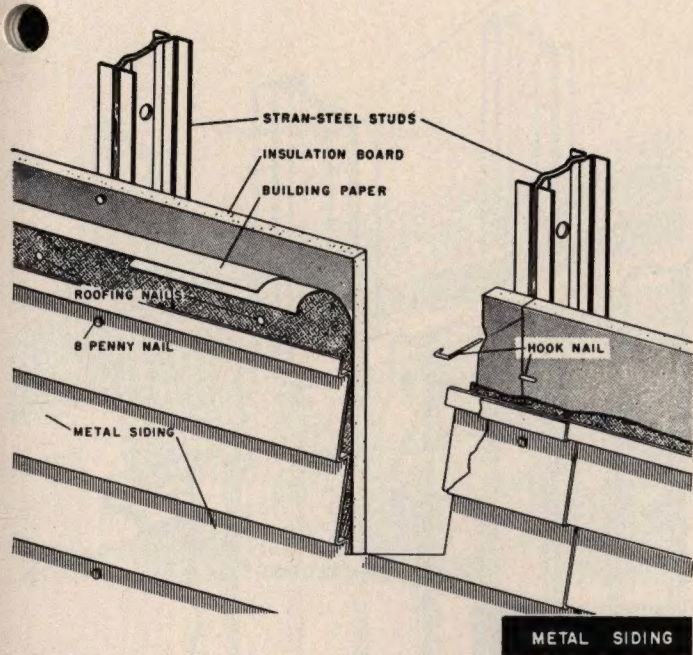
**EXTERIOR  
WALL  
CONSTRUCTION**

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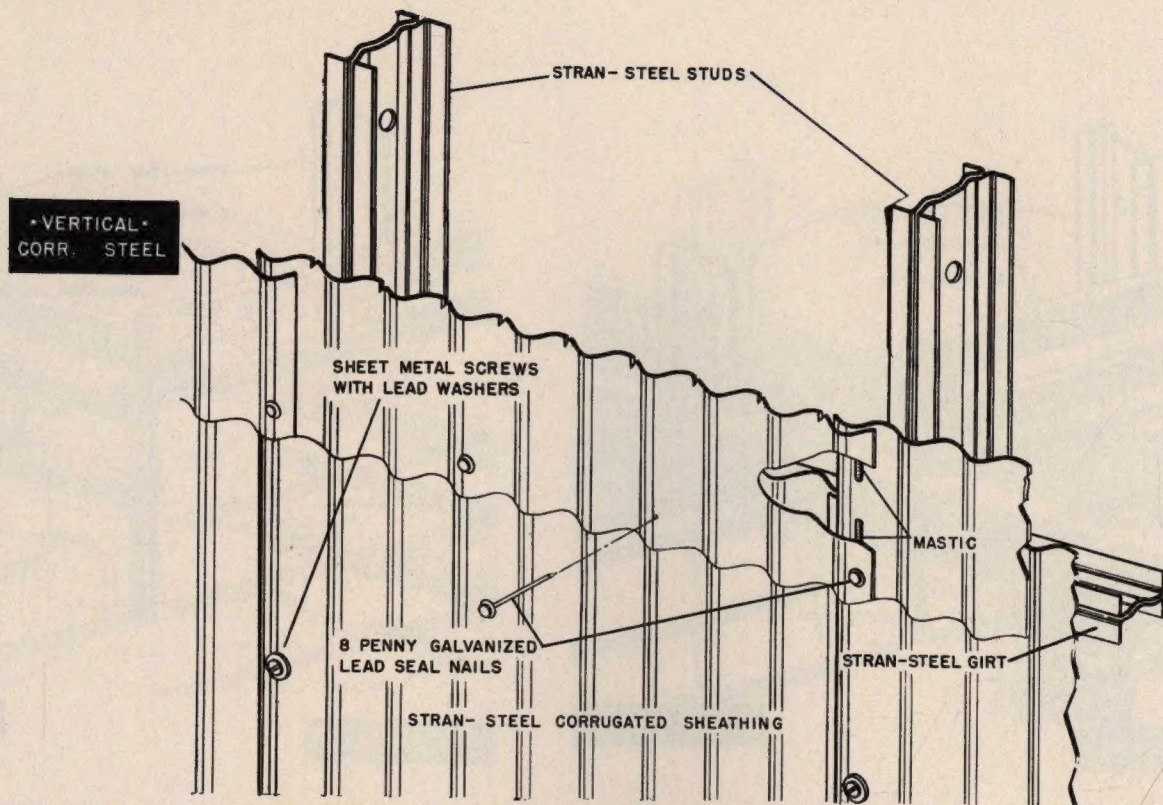
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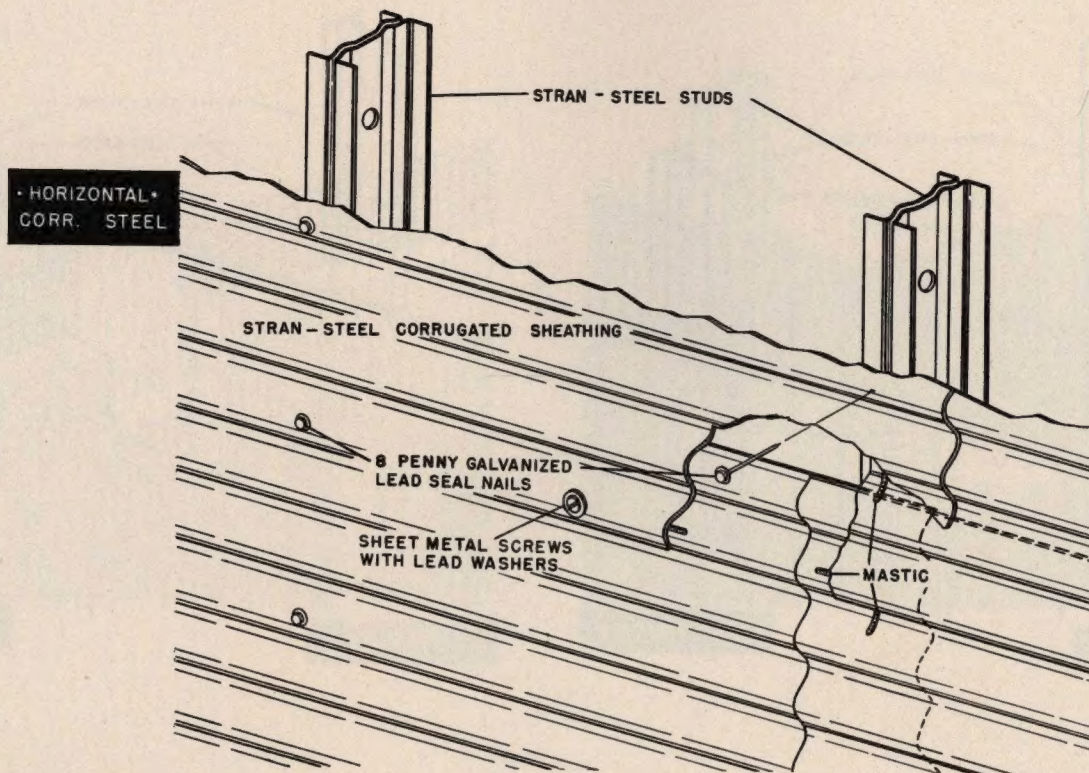
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# ARCHITECTURAL DETAILS



• FOR METHOD OF ATTACHING CORRUGATED SHEETS SEE PAGE B-q-16



EXTERIOR  
WALL  
CONSTRUCTION

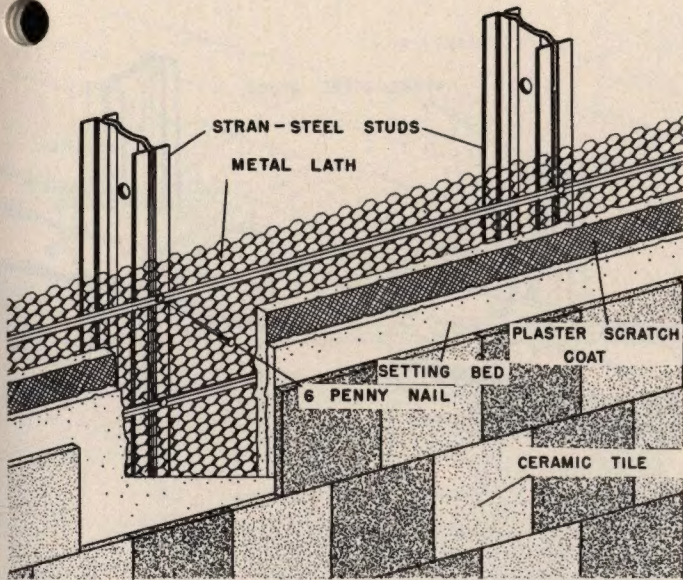
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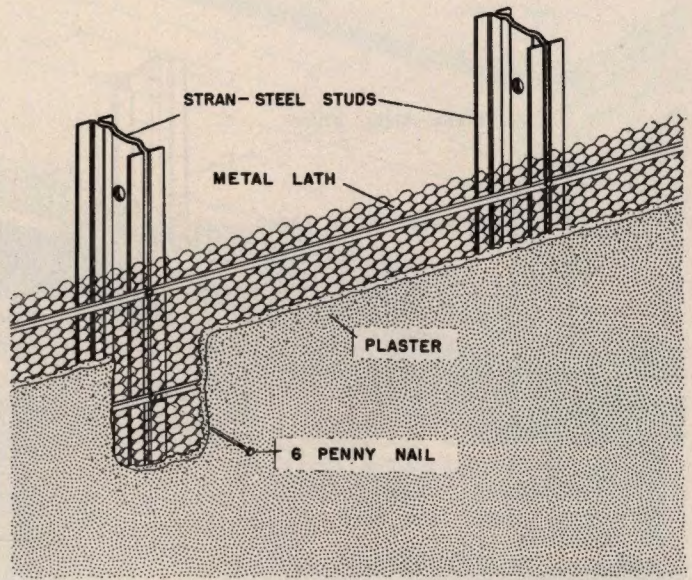
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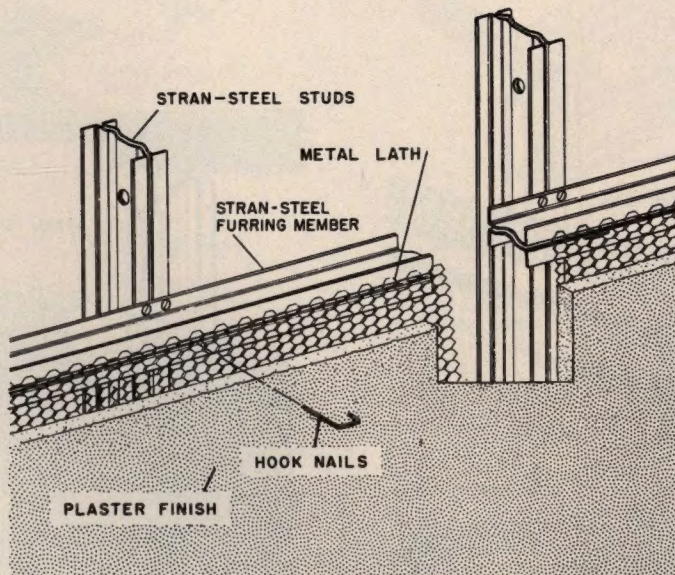
## ARCHITECTURAL DETAILS



TILE



PLASTER



FURRING MEMBERS

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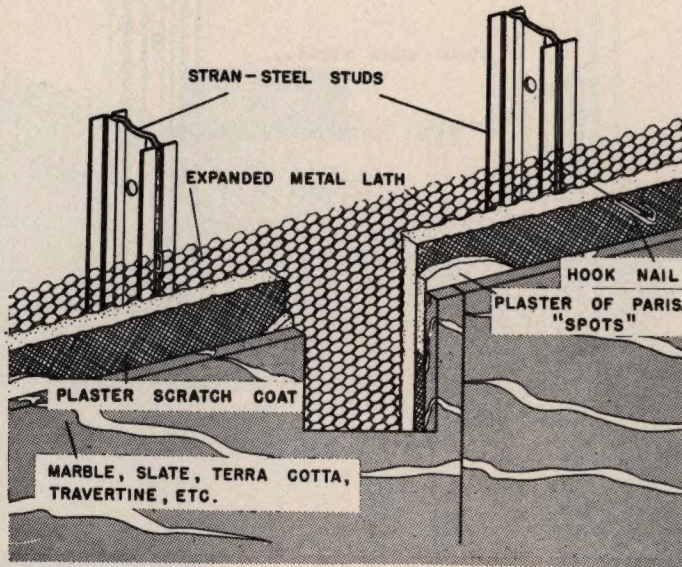
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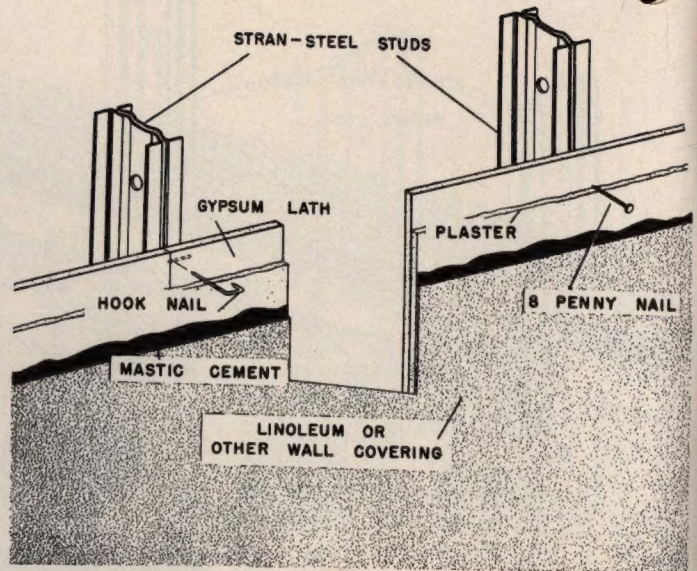
**INTERIOR  
WALL  
CONSTRUCTION**



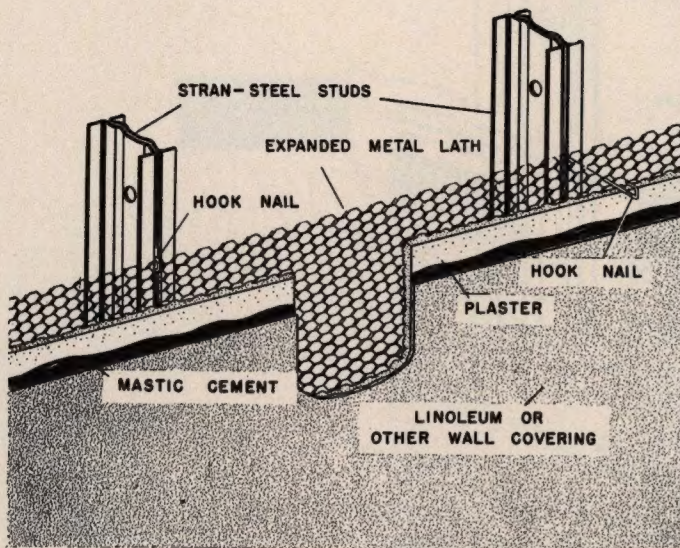
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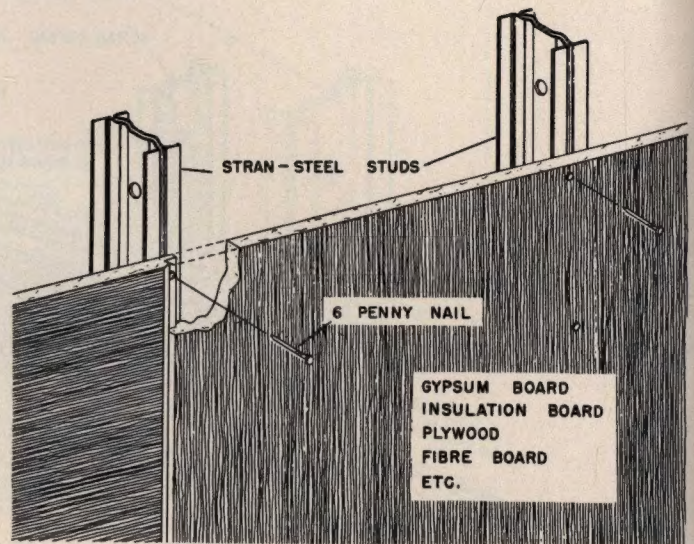
SLAB FINISH



CEMENTED FINISH



CEMENTED FINISH



RIGID BOARD

INTERIOR  
WALL  
CONSTRUCTION

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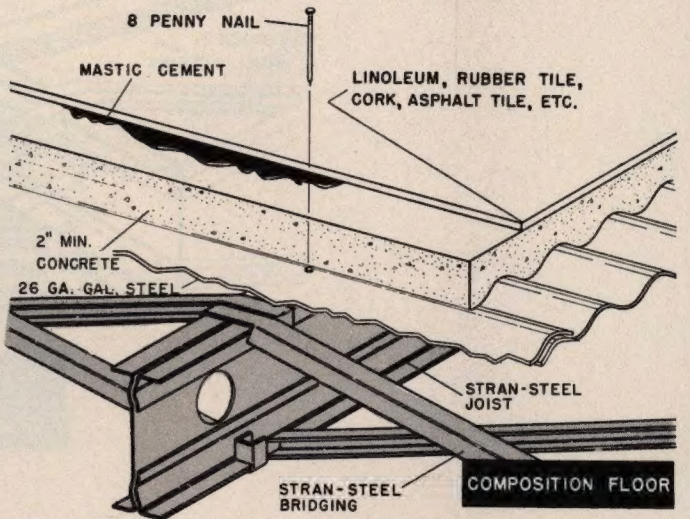
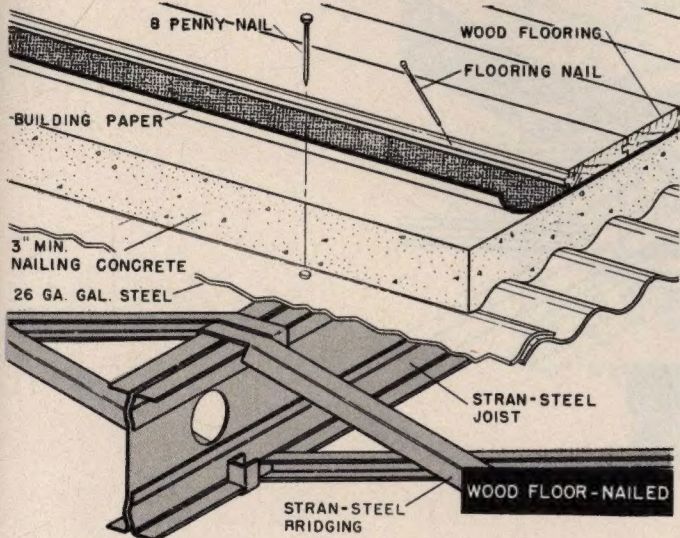
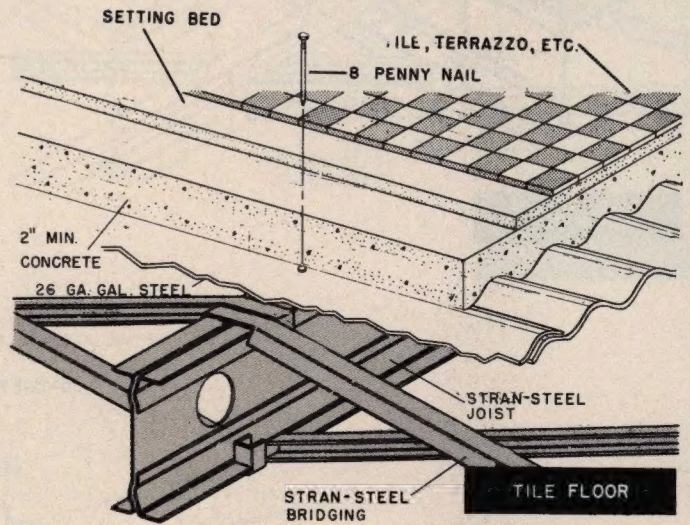
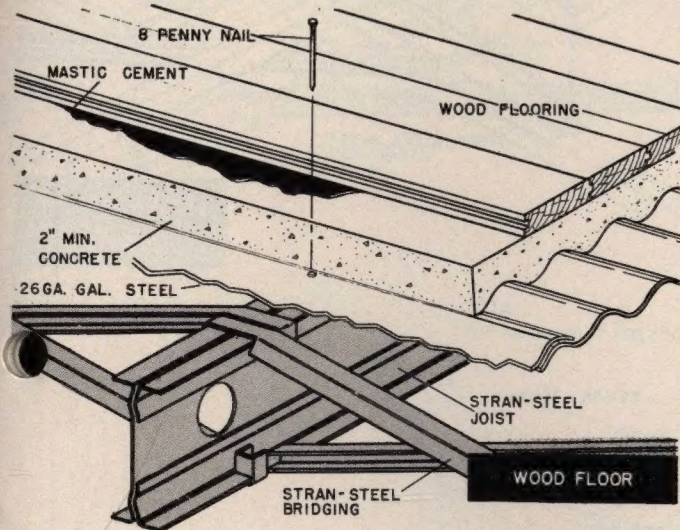
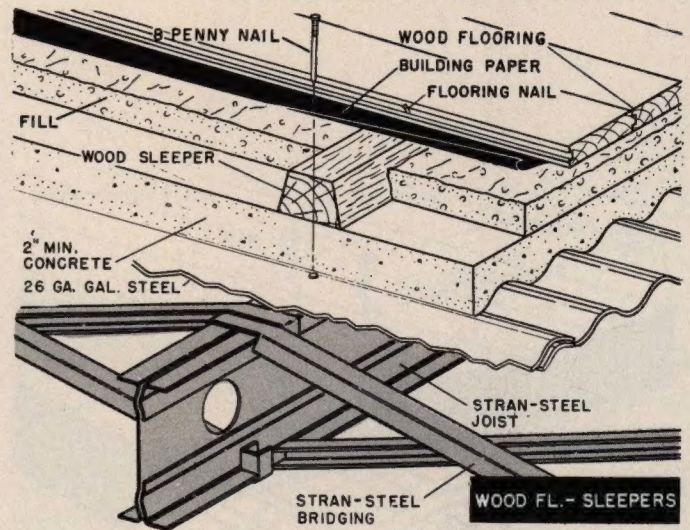
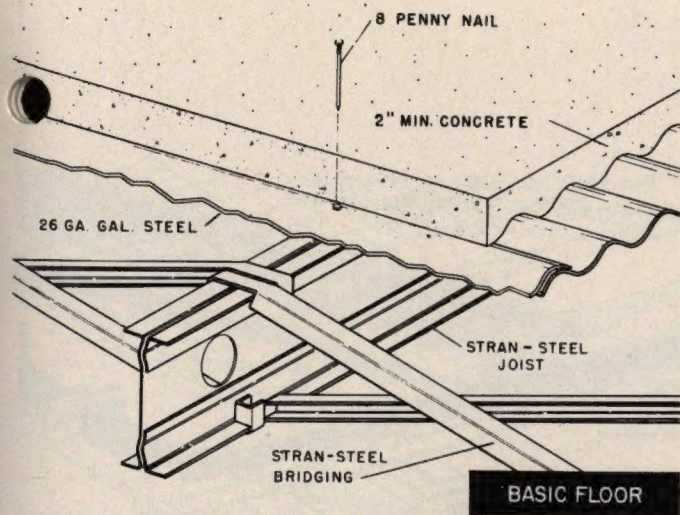
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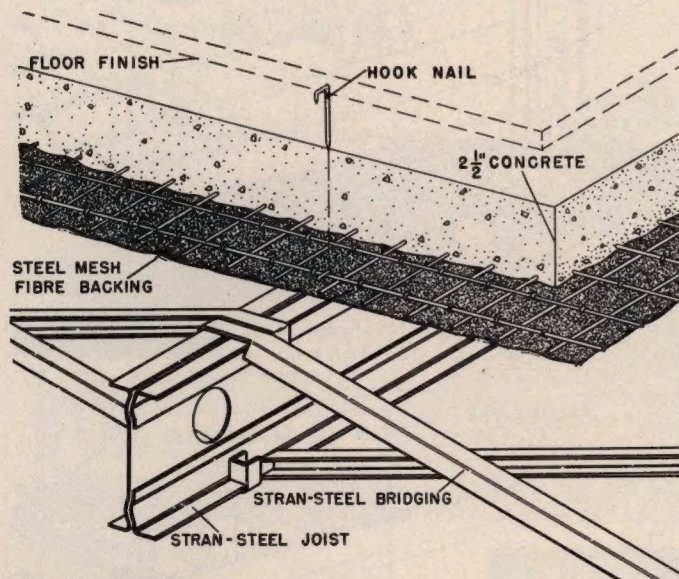
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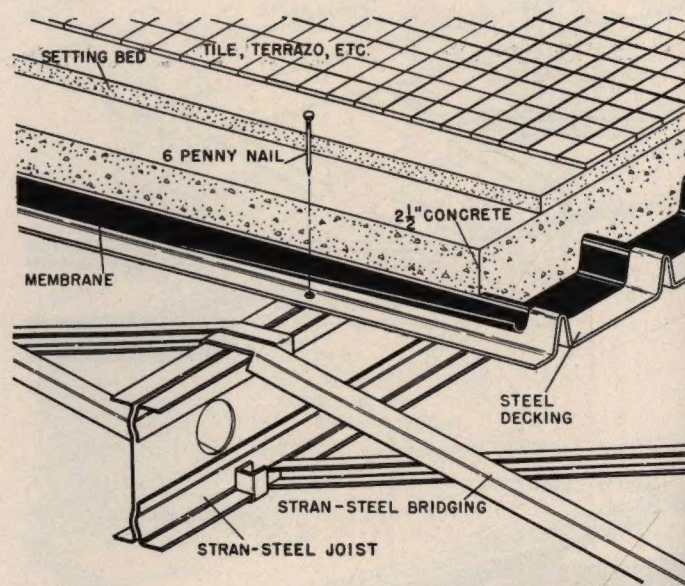
**FLOOR  
CONSTRUCTION**



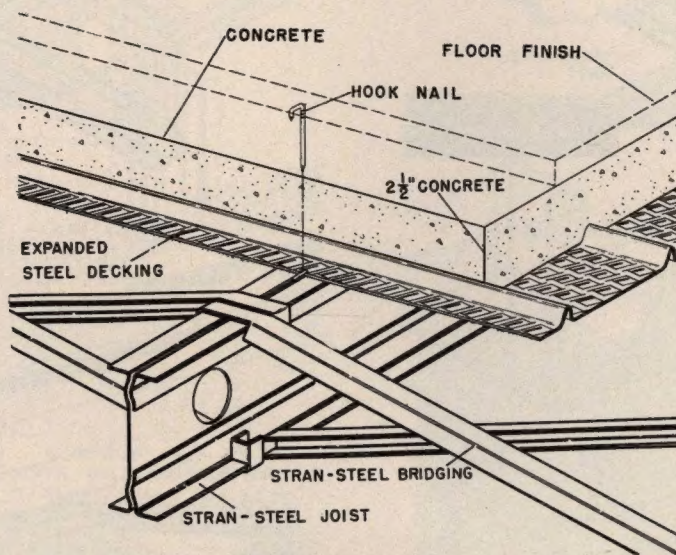
# ARCHITECTURAL DETAILS



STEEL MESH



STEEL DECKING



EXPANDED STEEL

**FLOOR  
CONSTRUCTION**

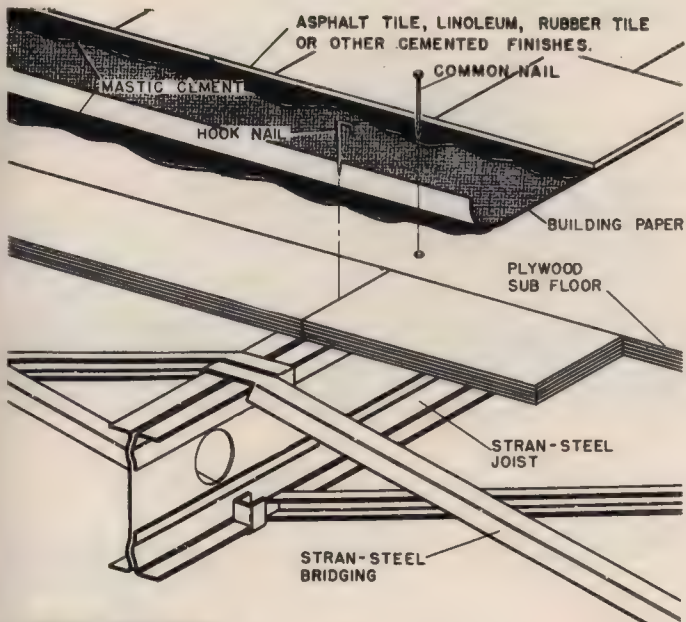
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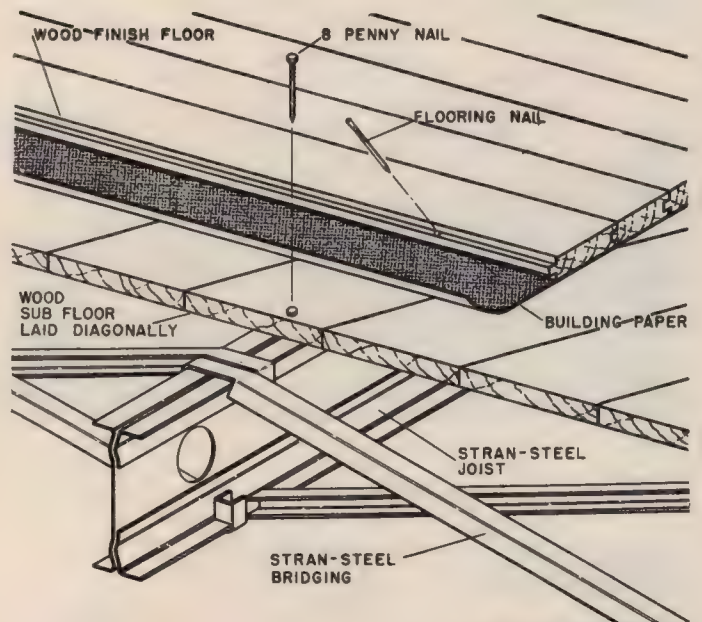
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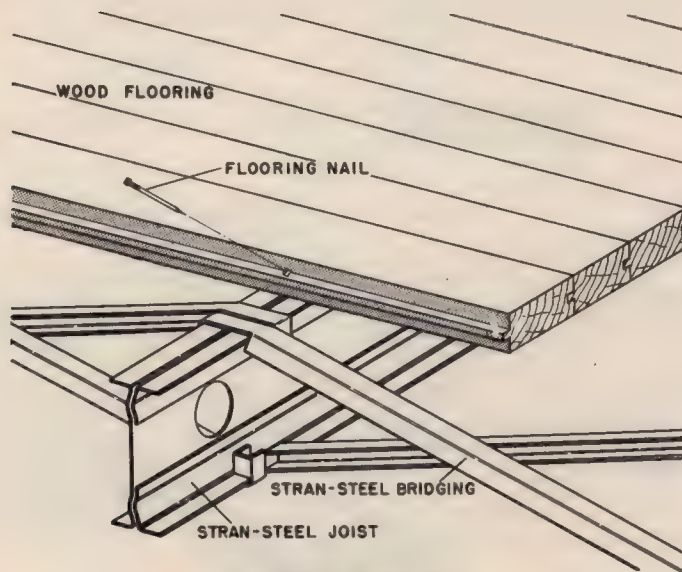


PLYWOOD



DIAGONAL SHEATHING

NOTE:  
FOR METHODS OF PREVENTING FLOOR SQUEAKS SEE PG. E-G-2.



WOOD FLOORING

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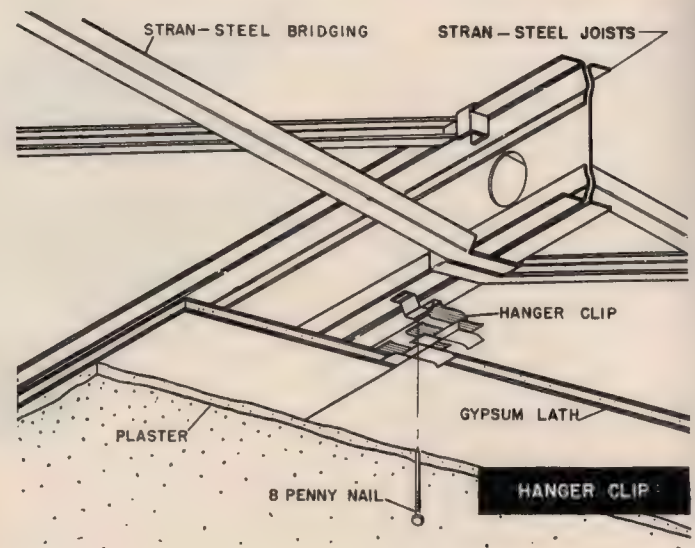
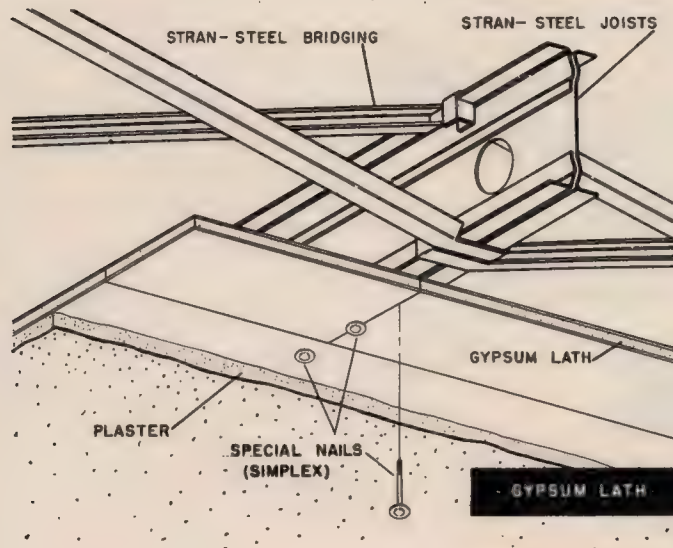
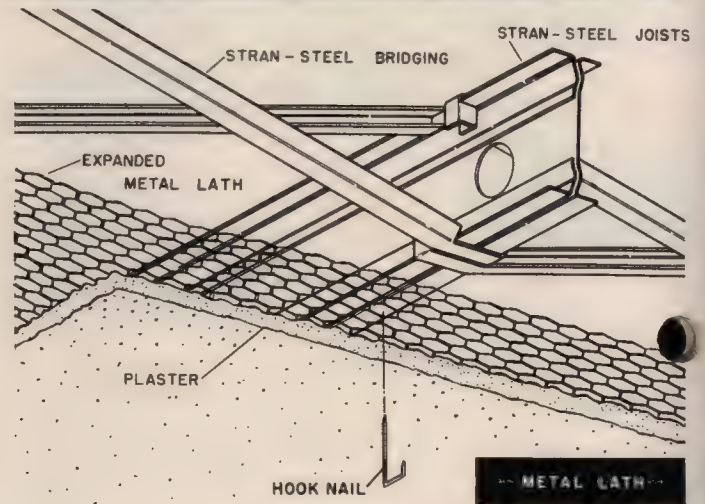
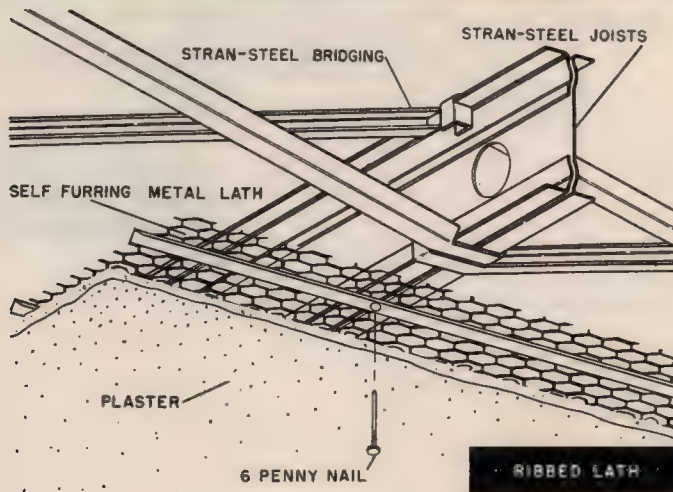
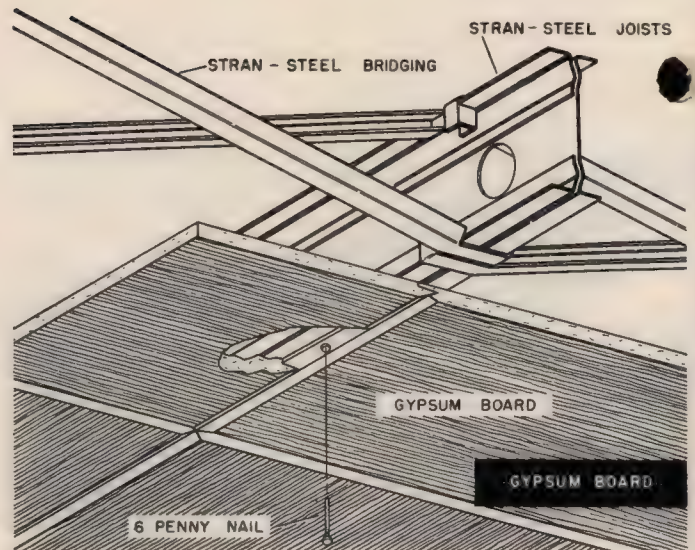
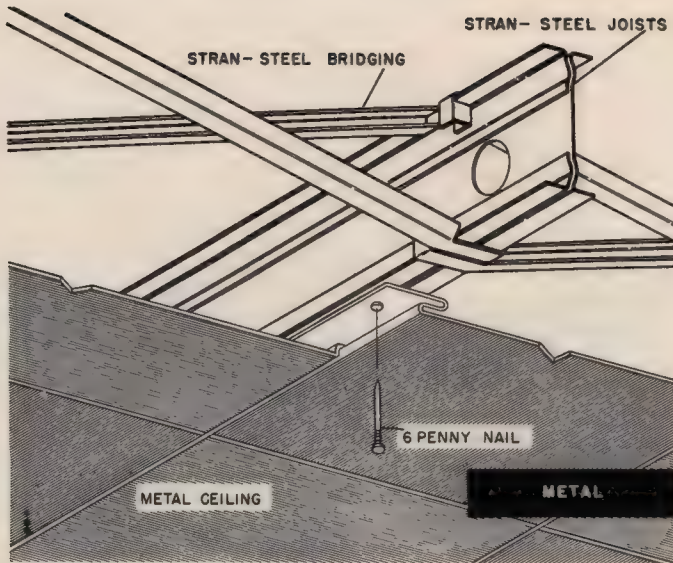
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**FLOOR  
CONSTRUCTION**





**CEILING  
CONSTRUCTION**

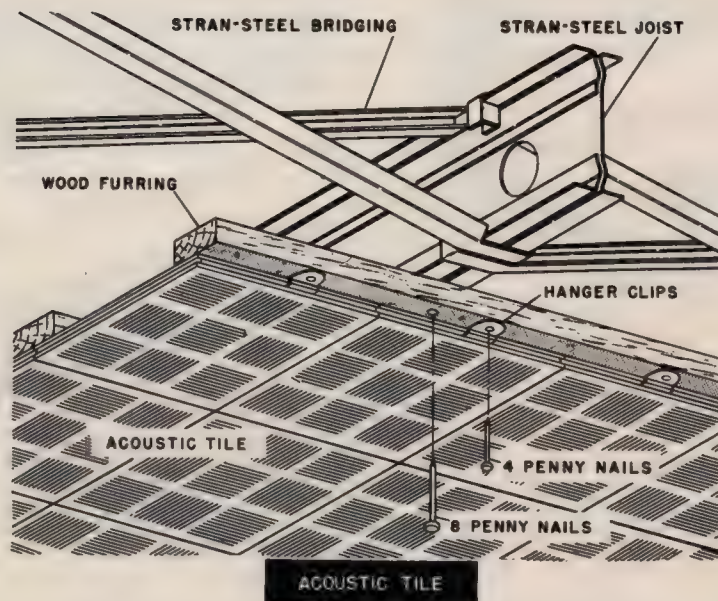
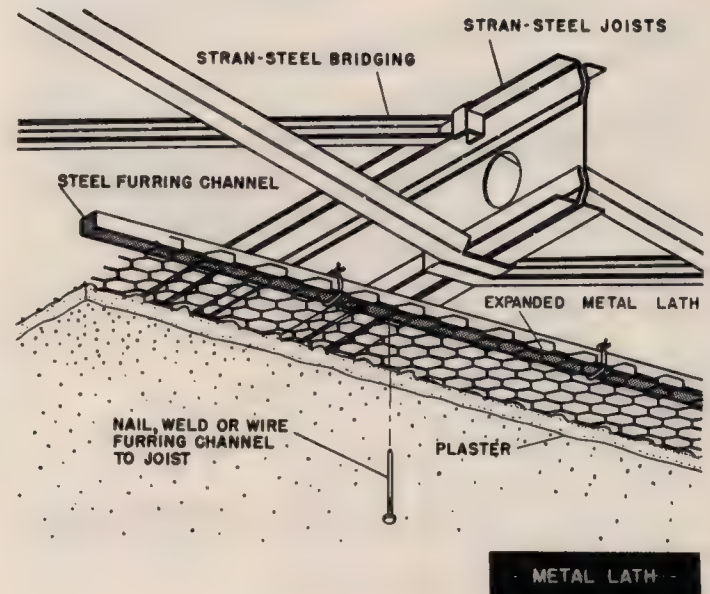
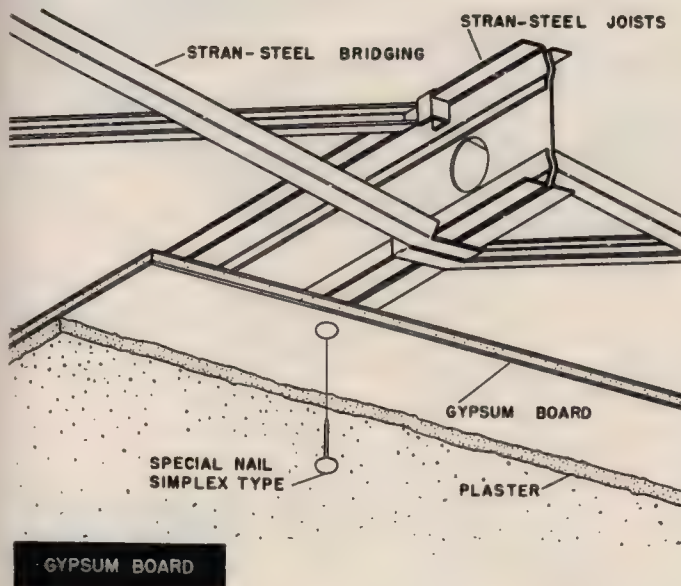
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## ARCHITECTURAL DETAILS



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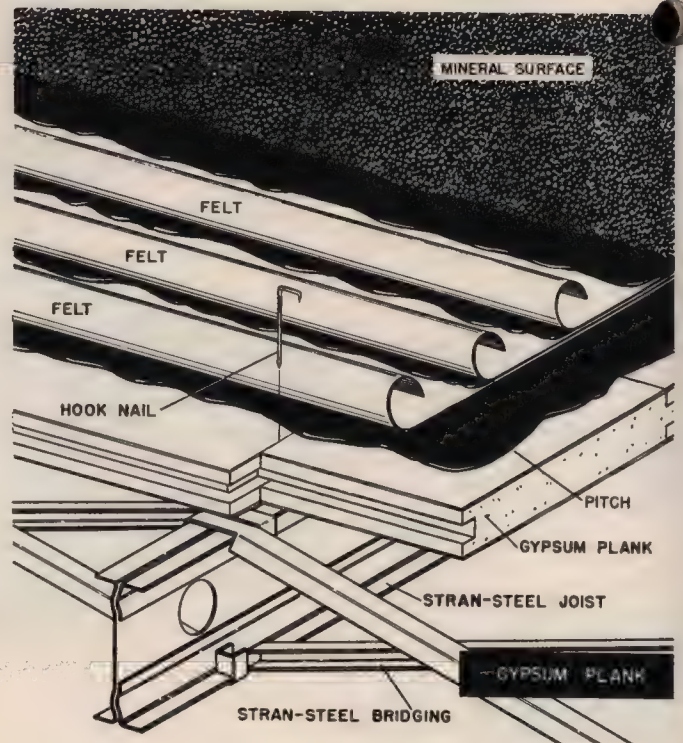
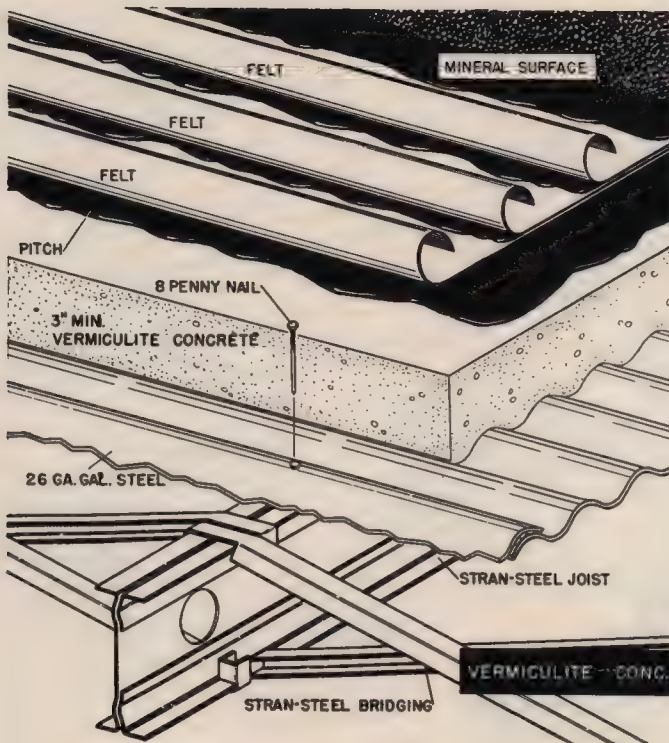
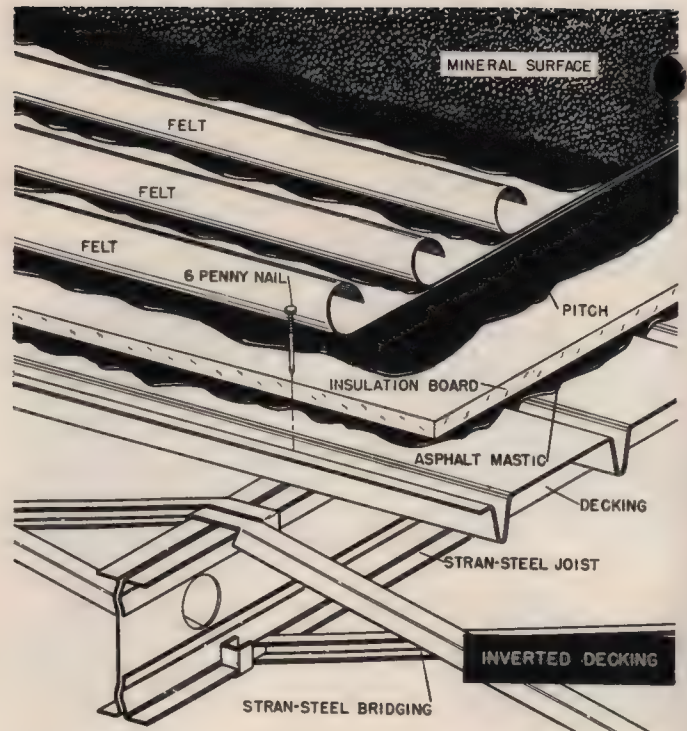
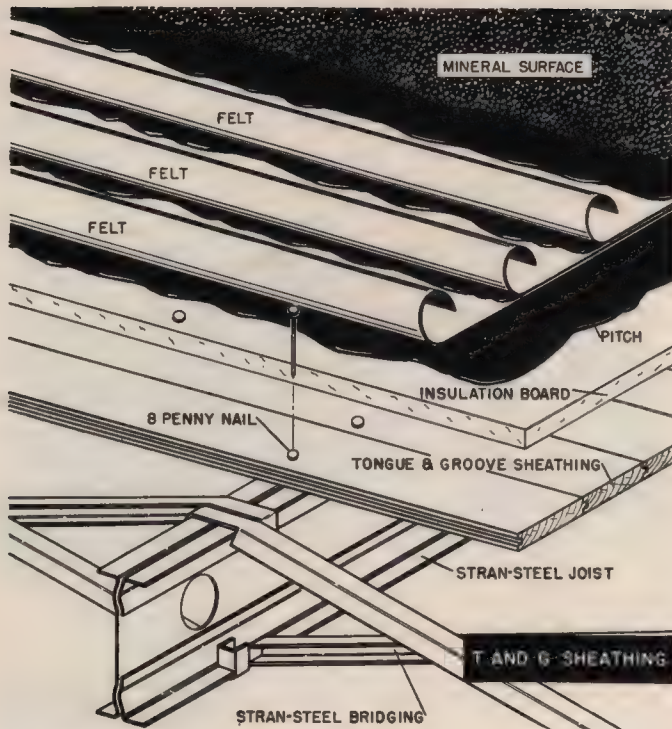
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**FURRED  
CEILING  
CONSTRUCTION**



# ARCHITECTURAL DETAILS



**DECK TYPE  
ROOF  
CONSTRUCTION**

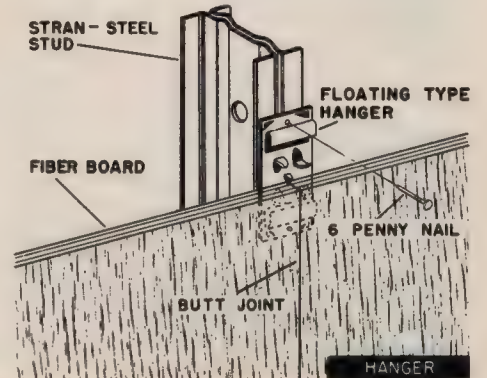
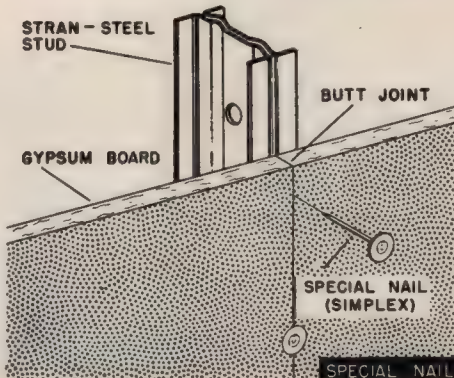
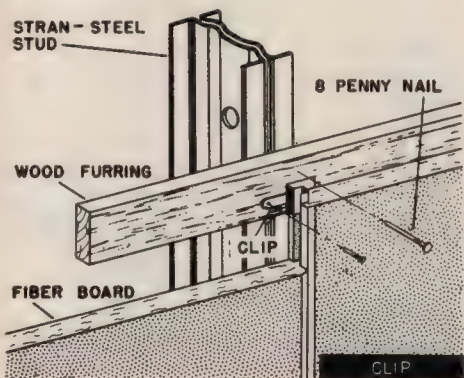
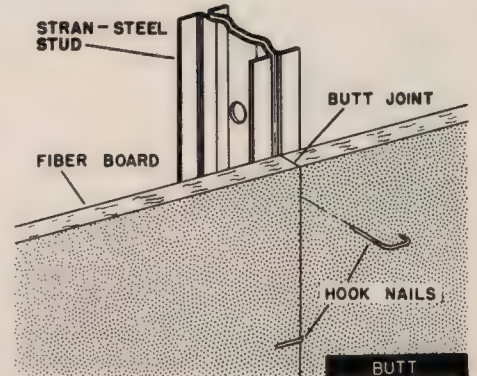
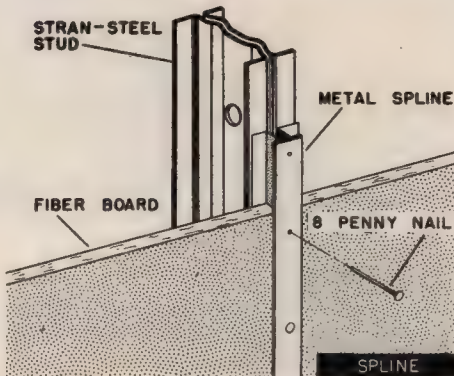
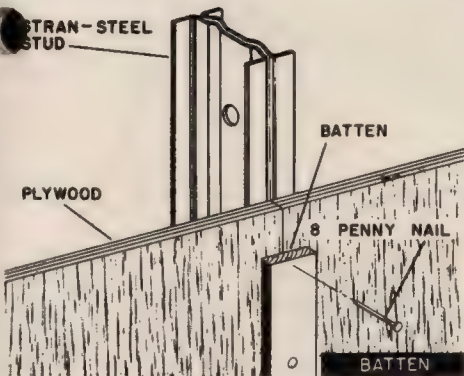
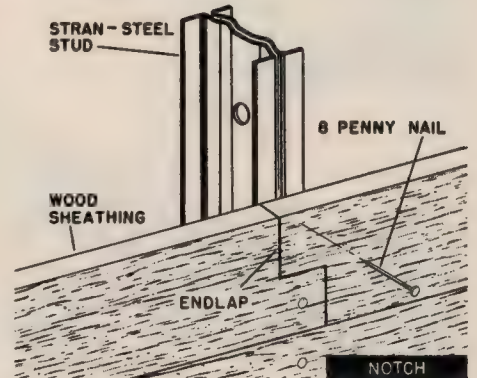
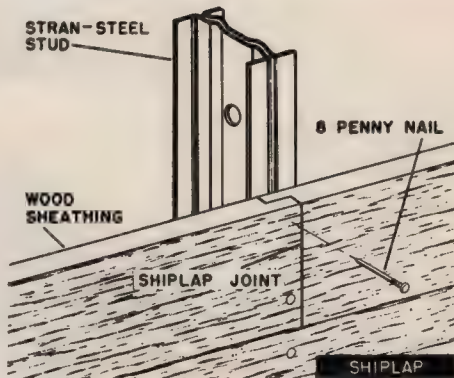
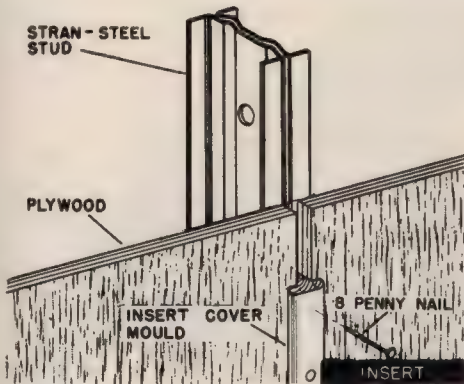
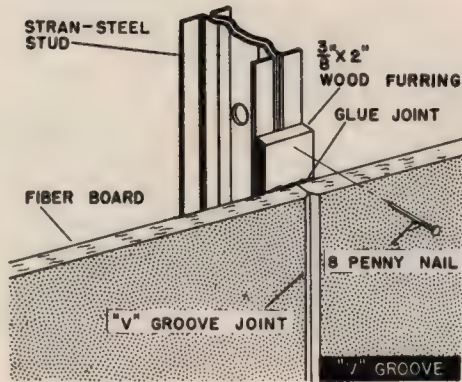
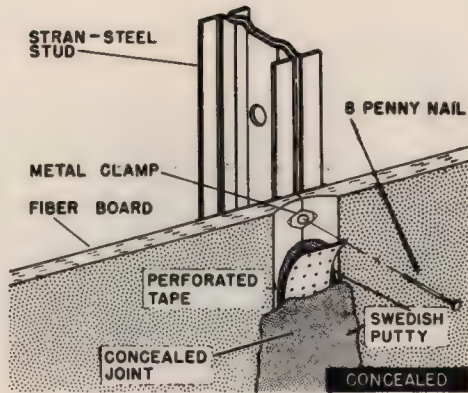
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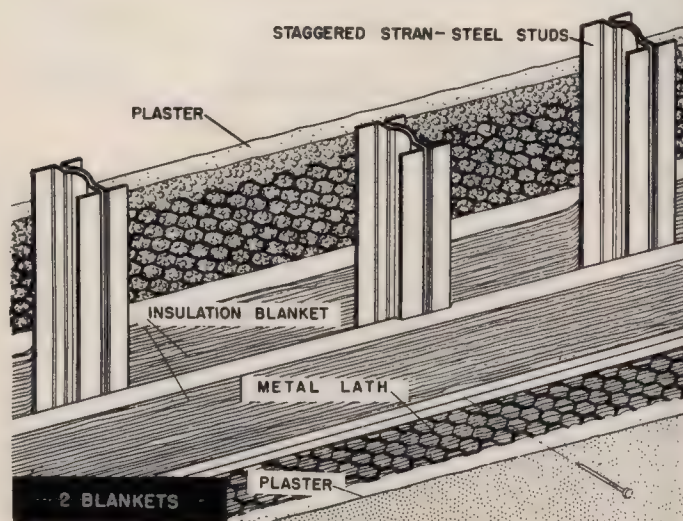
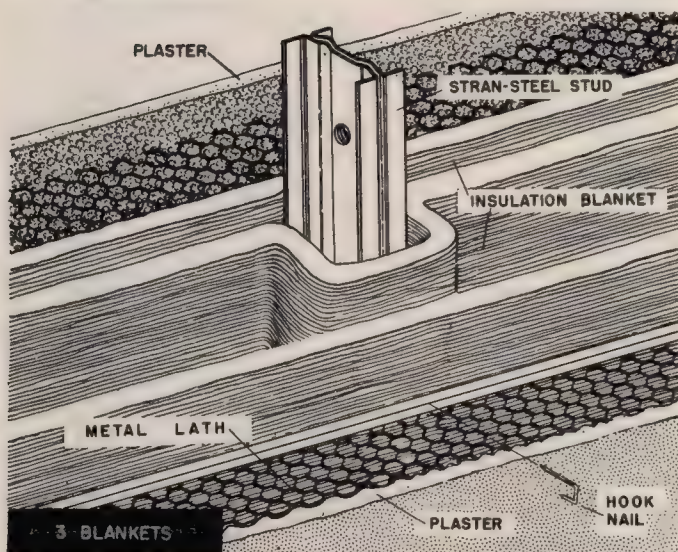
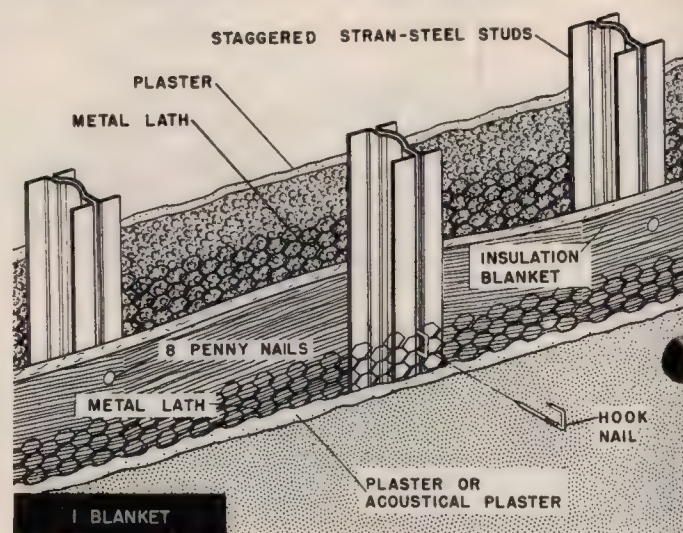
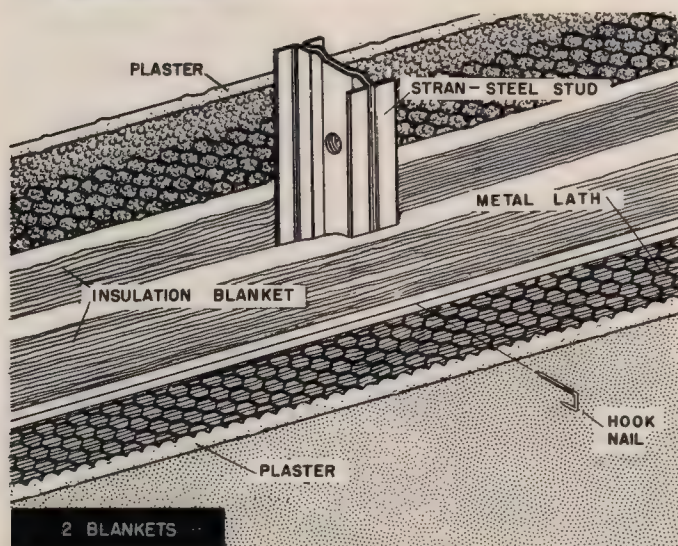
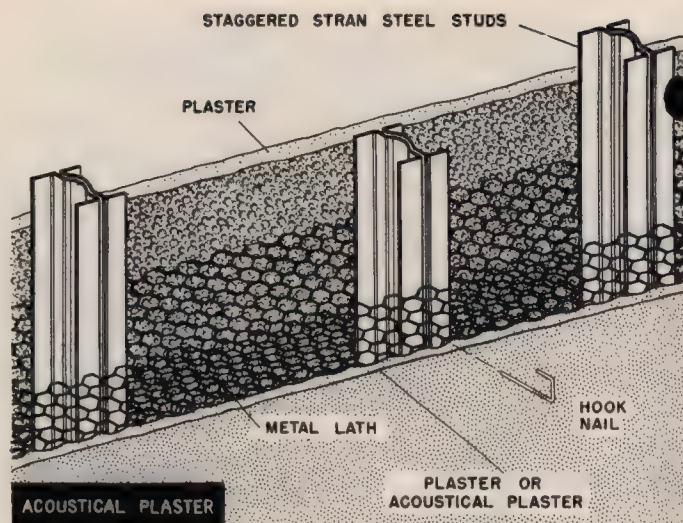
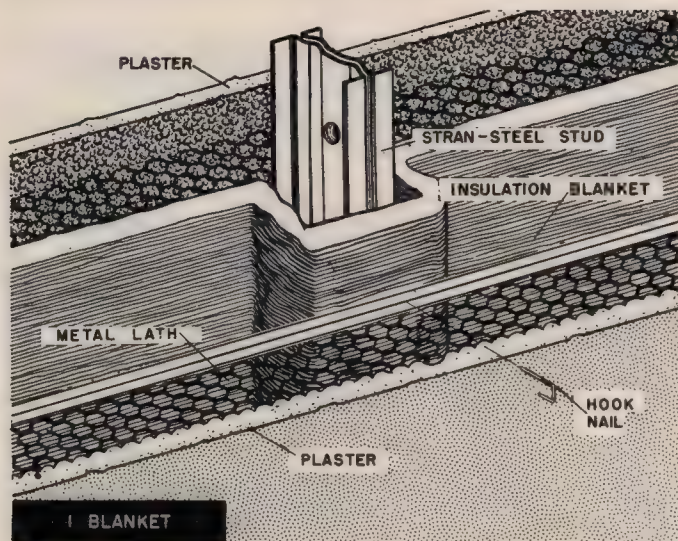
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**COLLATERAL JOINTS**



# ARCHITECTURAL DETAILS



**SOUND  
INSULATION**

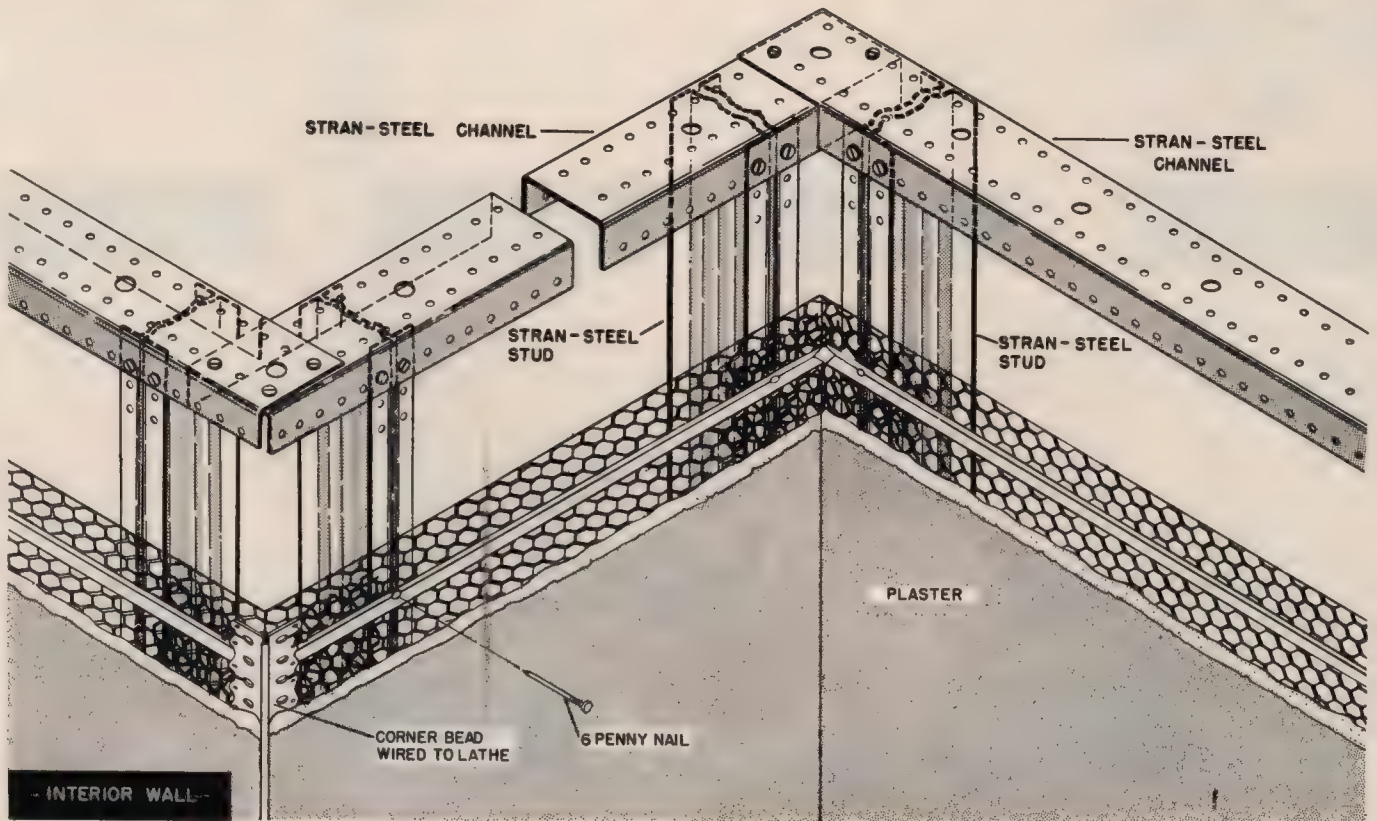
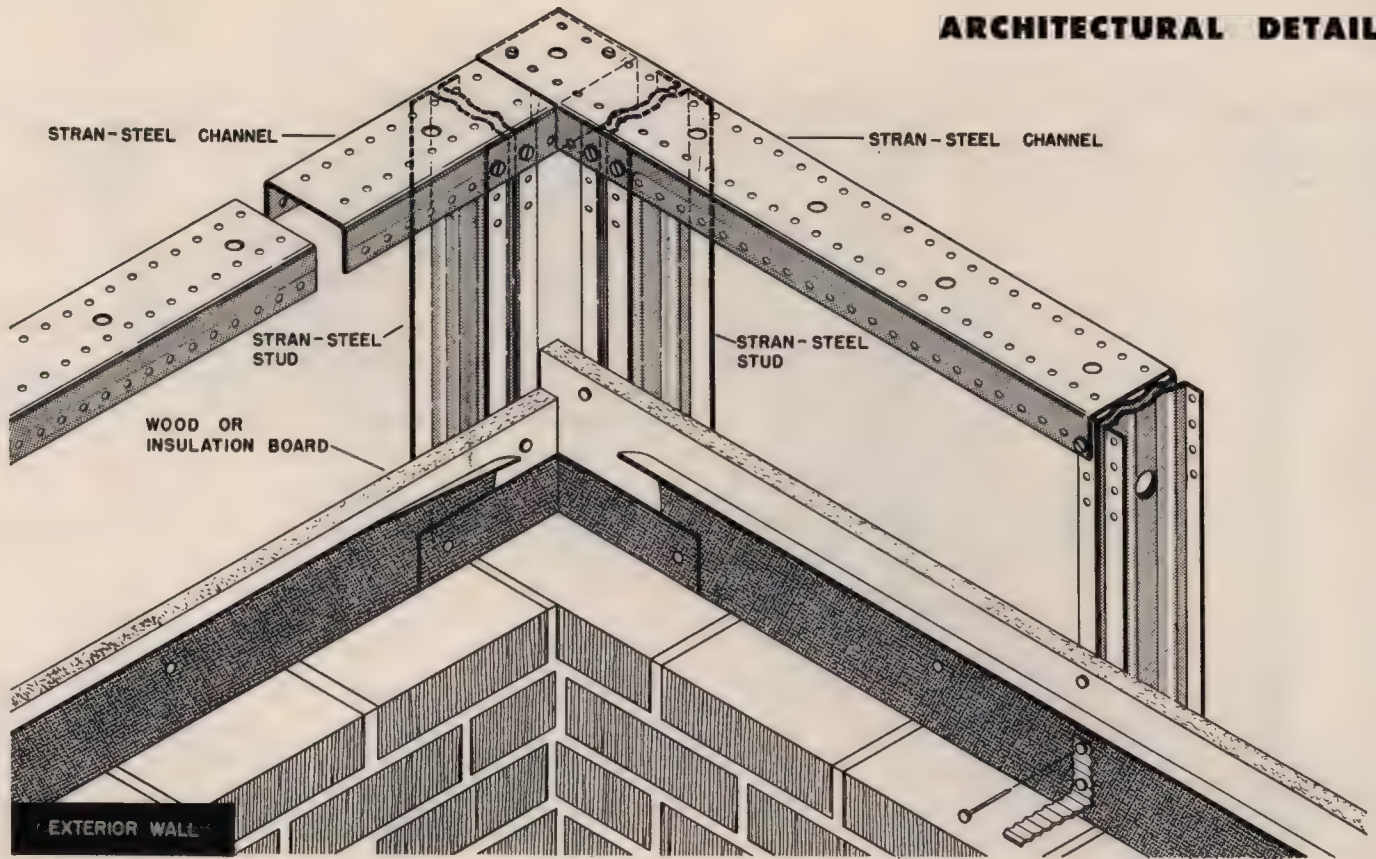
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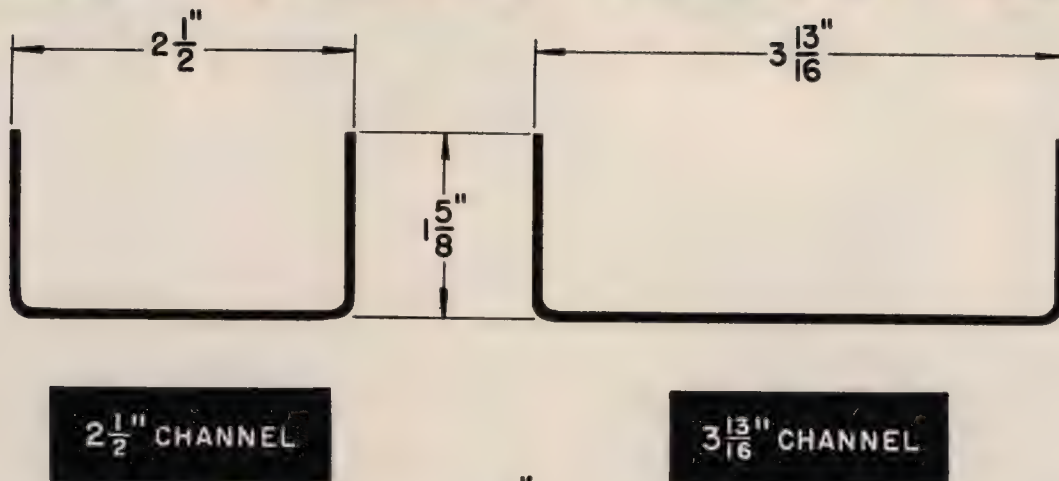
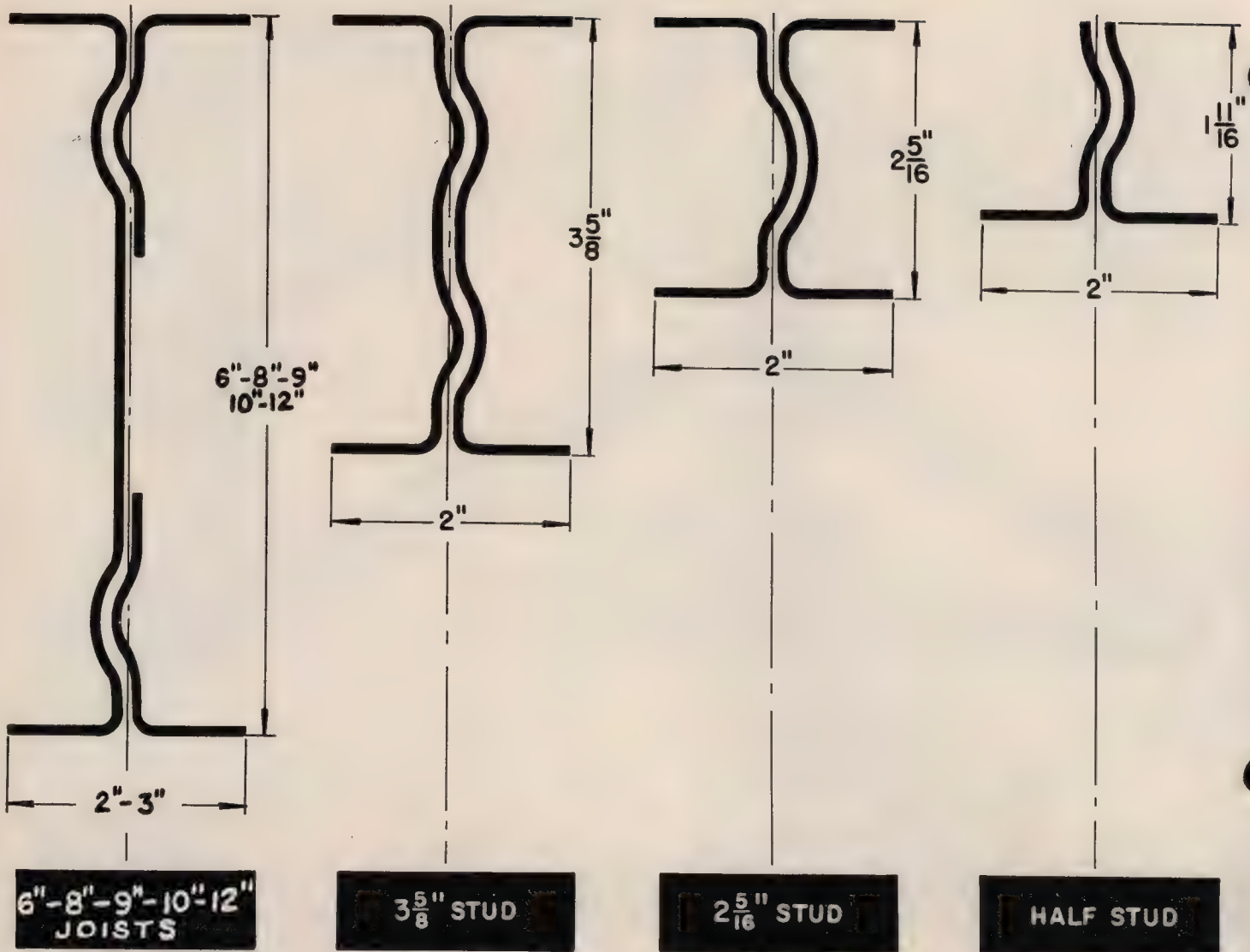
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**CORNERS**



# ARCHITECTURAL DETAILS



SCALE -  $\frac{3}{4}$ " = 1"

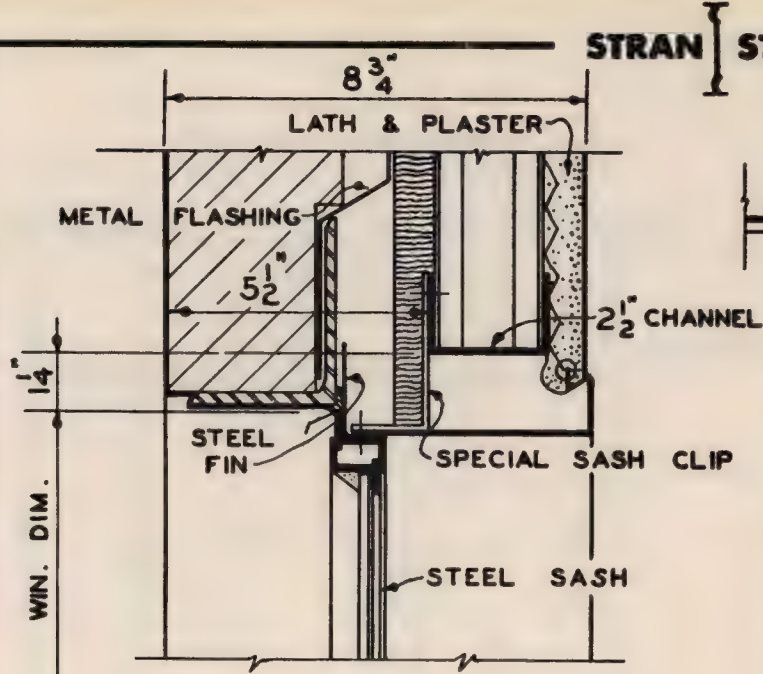
**STRAN-STEEL  
FRAMING MEMBERS**

**STRAN-STEEL CORPORATION**

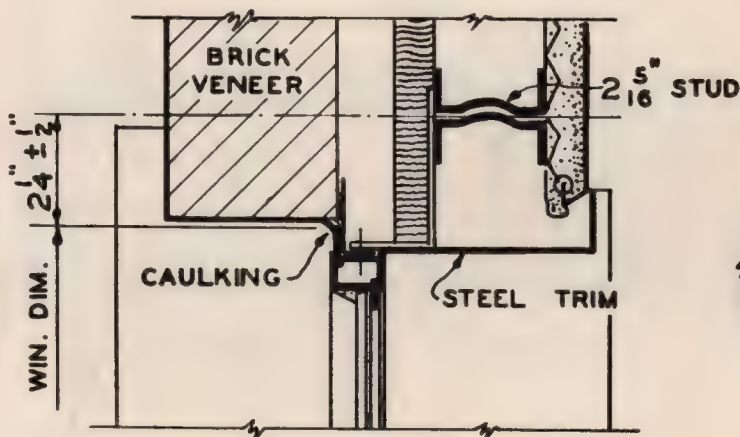
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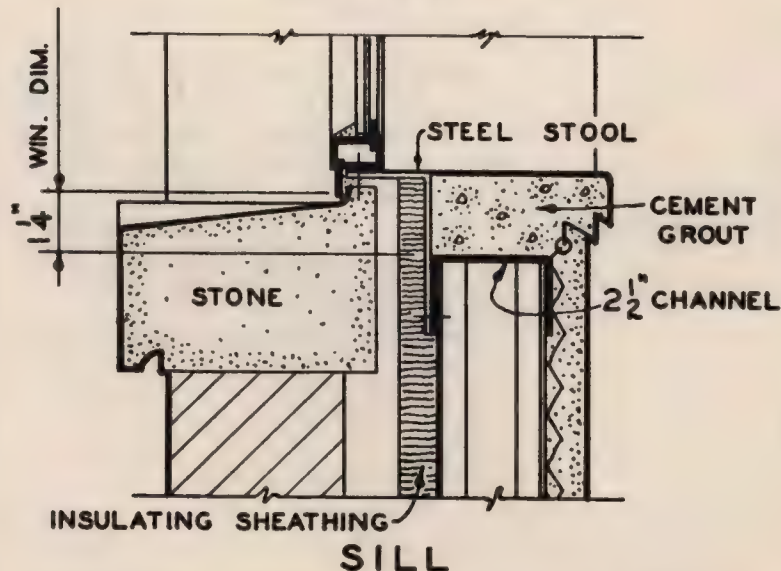




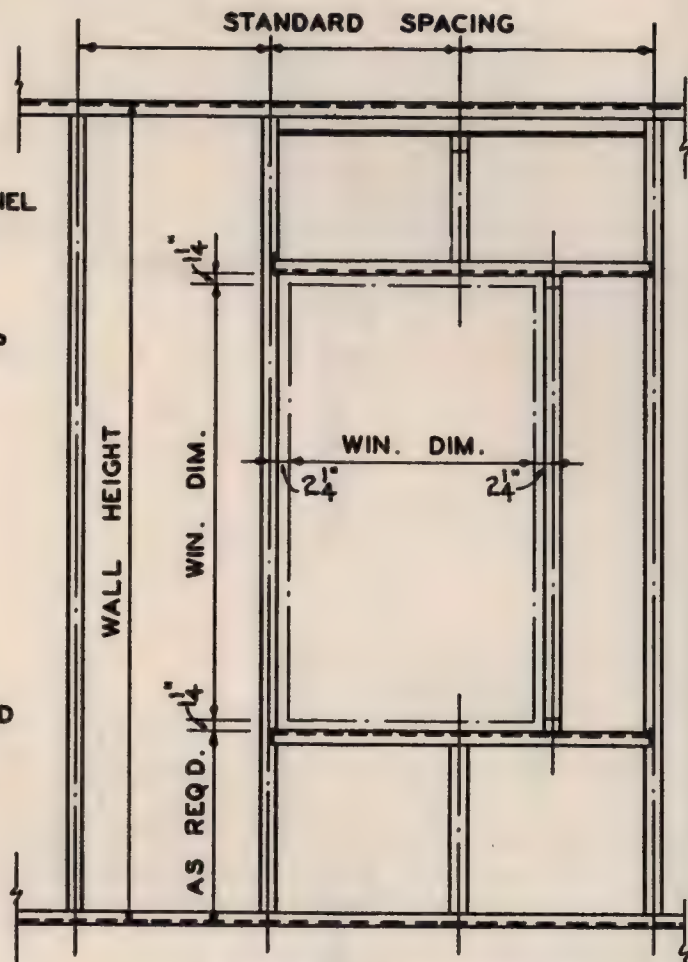
HEAD



JAMB



SILL



LAYOUT OF OPENING

### ERECTION -

ASSEMBLE SASH, TRIM, SASH CLIPS AND STEEL FINIS WITH  $\frac{3}{16}$ " BOLTS. INSTALL FROM EXTERIOR BEFORE SHEATHING IS APPLIED. SECURE CLIPS TO CHANNELS WITH  $\frac{1}{4}$ " BOLTS. SECURE CLIPS TO STUDS WITH NAILS. SPECIAL SASH CLIPS TO BE FURNISHED WITH STRAN-STEEL. SPACE SASH CLIPS ABOUT 18" O.C. PROTECT ALL STEEL TRIM DURING CONSTRUCTION.

NOTE - USE SIMILAR DETAIL WITH 3 5/8" STUDS

SCALE 3" = 1'-0"

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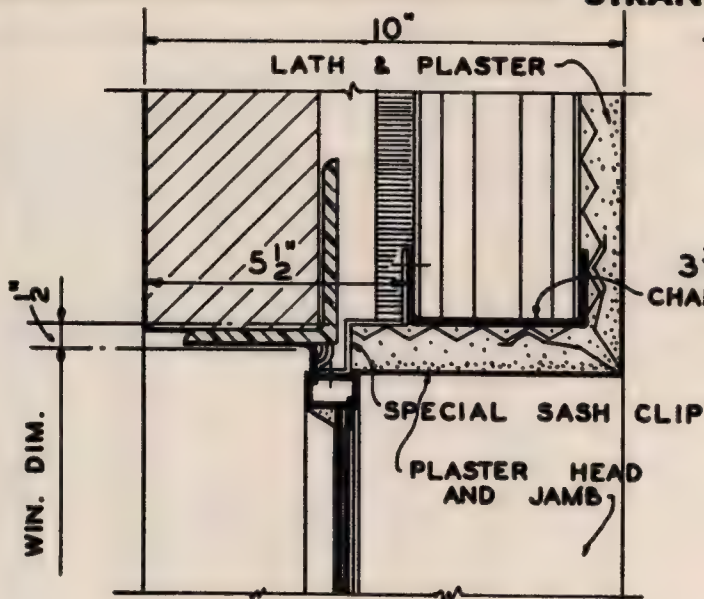
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**WINDOW DETAILS**

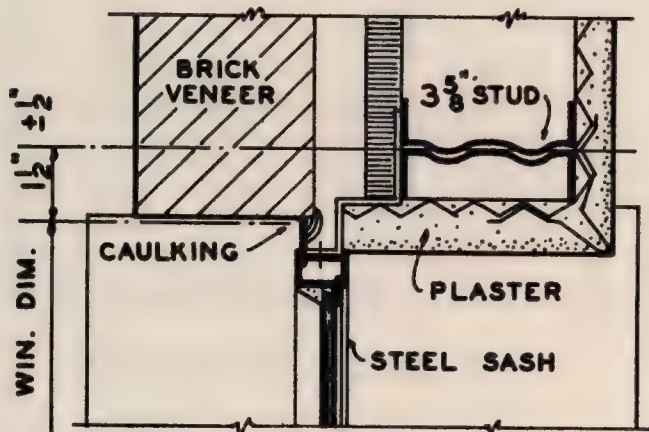
STEEL CASEMENTS  
STEEL TRIM  
BRICK VENEER



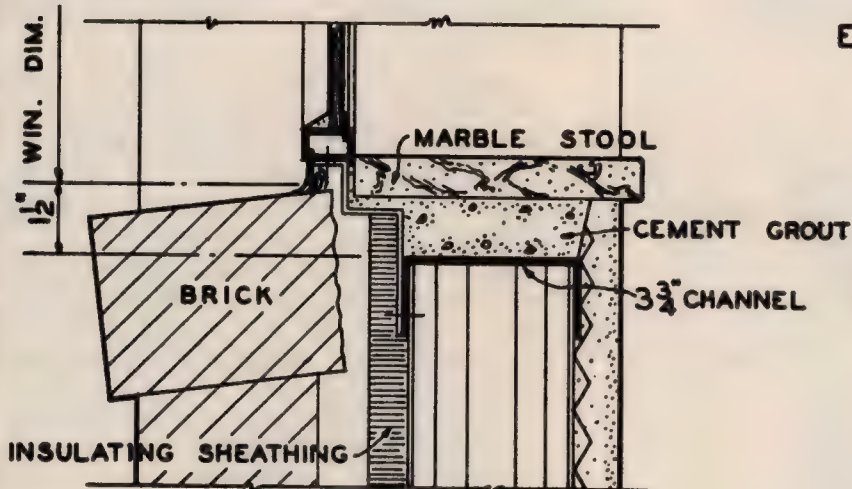
# STRAN STEEL



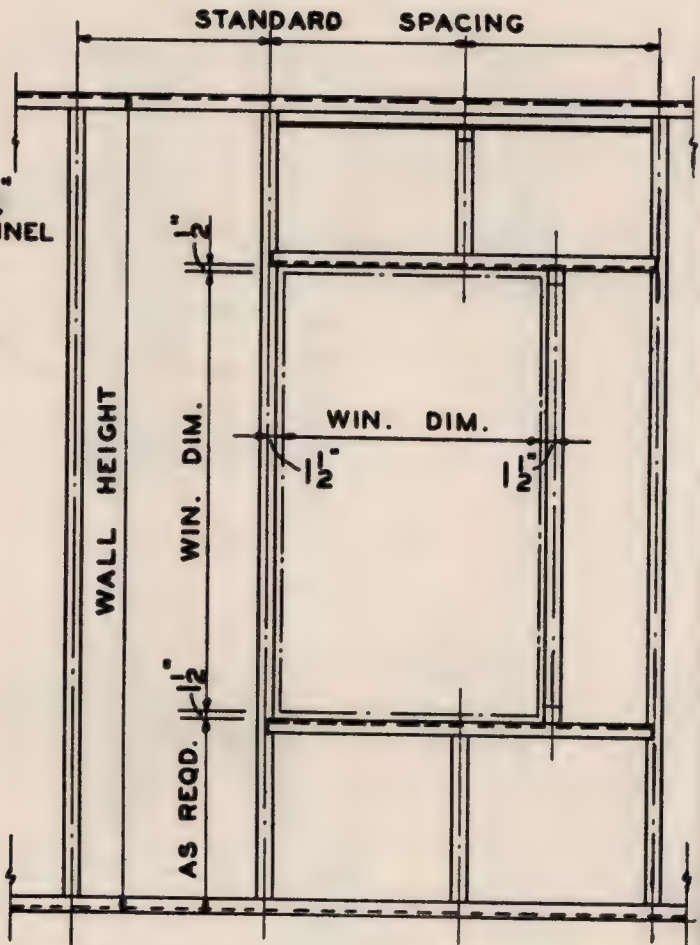
HEAD



JAMB



SILL



LAYOUT OF OPENING

## ERECTION -

ATTACH SASH CLIPS TO SASH WITH  $\frac{3}{16}$ " BOLTS. INSTALL FROM EXTERIOR BEFORE SHEATHING IS APPLIED. SECURE CLIPS TO THE CHANNELS WITH  $\frac{1}{4}$ " BOLTS.

SECURE CLIPS TO STUDS WITH NAILS. SPECIAL SASH CLIPS SHALL BE FURNISHED WITH STRAN-STEEL.

SPACE SASH CLIPS ABOUT 16" O.C.

NOTE - USE SIMILAR DETAIL WITH  $2\frac{5}{16}$ " STUDS.

SCALE 3"-1'-0"

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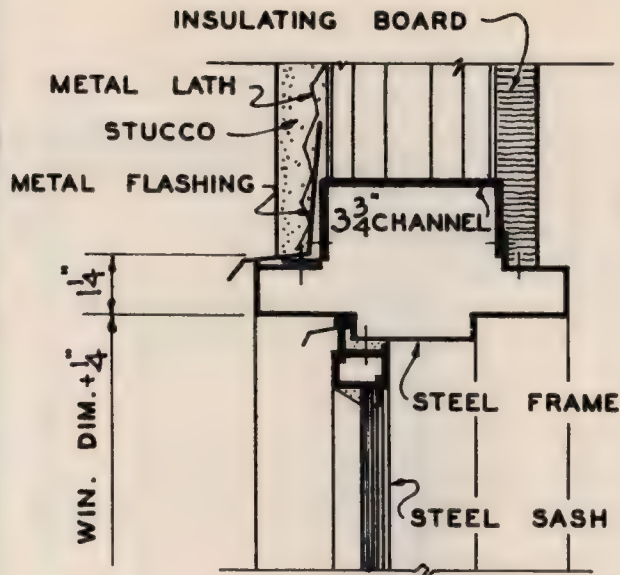
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**WINDOW DETAILS**

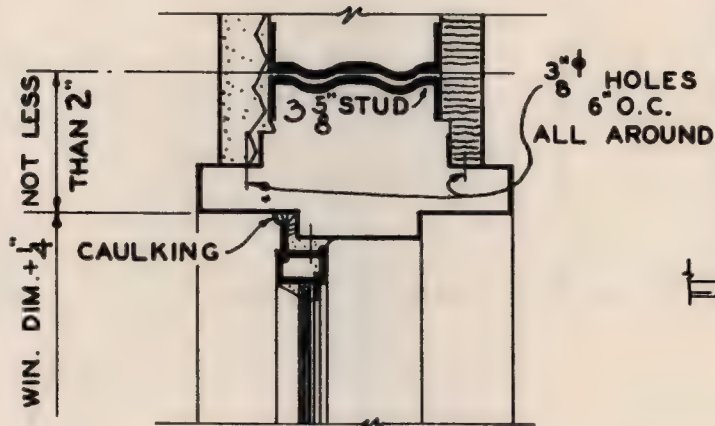
STEEL CASEMENT  
PLASTER TRIM  
BRICK VENEER



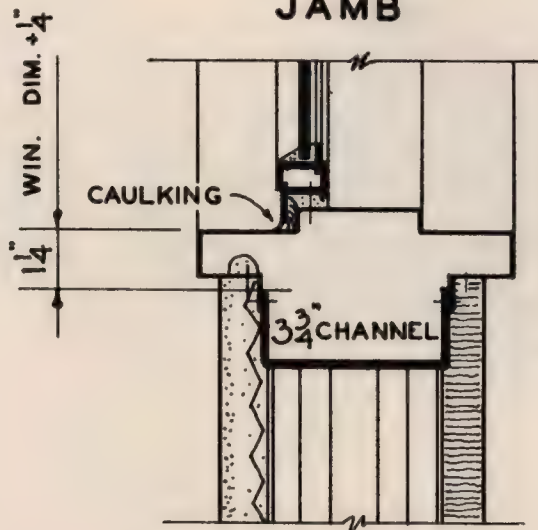
# STRAN STEEL



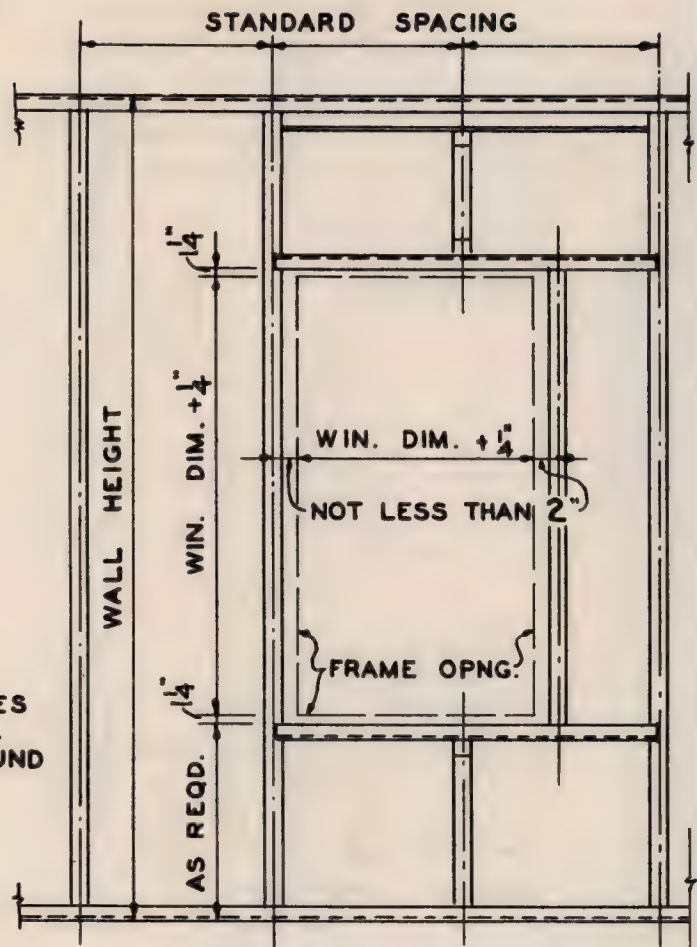
HEAD



JAMB



SILL



LAYOUT OF OPENING

## ERECTION -

ASSEMBLE SASH & FRAME WITH  $14 \times \frac{7}{8}$  P.K. TYPE 'A' BINDER HEAD SCREWS CADMIUM PLATED. ATTACH FRAME TO HEAD & SILL PLATES ONLY WITH  $\frac{5}{16} \times \frac{3}{4}$  P.K. HEX. HEAD CAP SCREWS TYPE 'A'.

## NOTE -

THIS TYPE OF WINDOW CONSTRUCTION MAY BE USED WITH ANY TYPE OF EXTERIOR OR INTERIOR COLLATERAL MATERIAL.

NOTE - USE SIMILAR DETAIL WITH  $2 \frac{5}{16}$  STUDS.

SCALE 3"=1'-0"

**STRAN-STEEL CORPORATION**

Ecorse, Detroit 29, Michigan • A Unit of

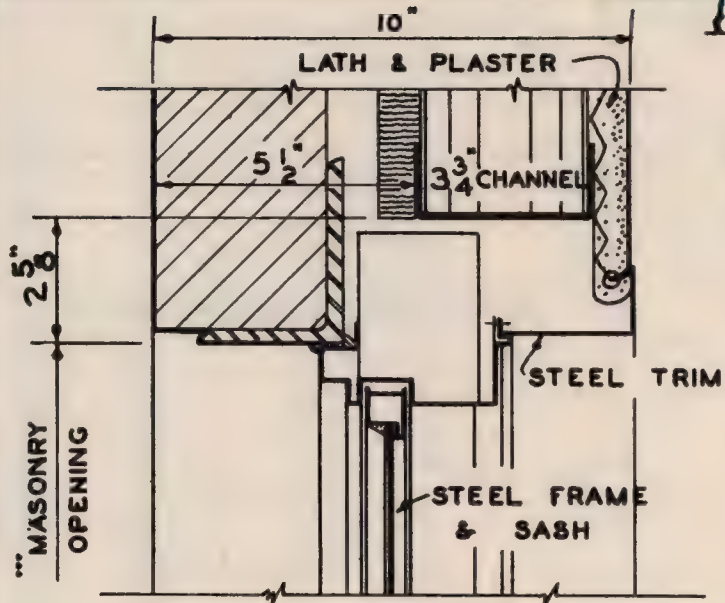
**NATIONAL STEEL CORPORATION**



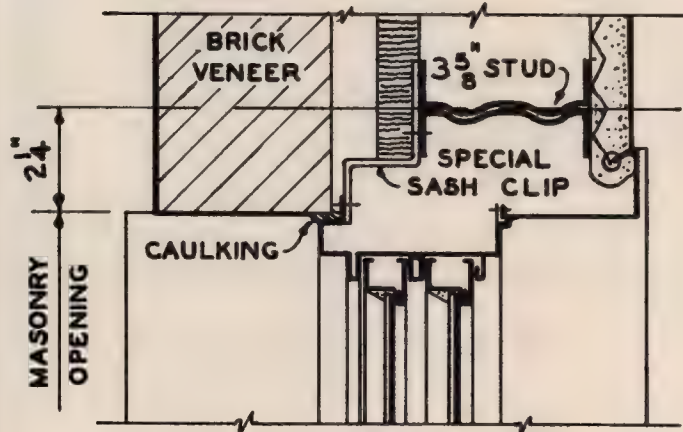
## WINDOW DETAILS

STEEL CASEMENTS  
STEEL FRAME (TYPICAL)  
STUCCO EXTERIOR

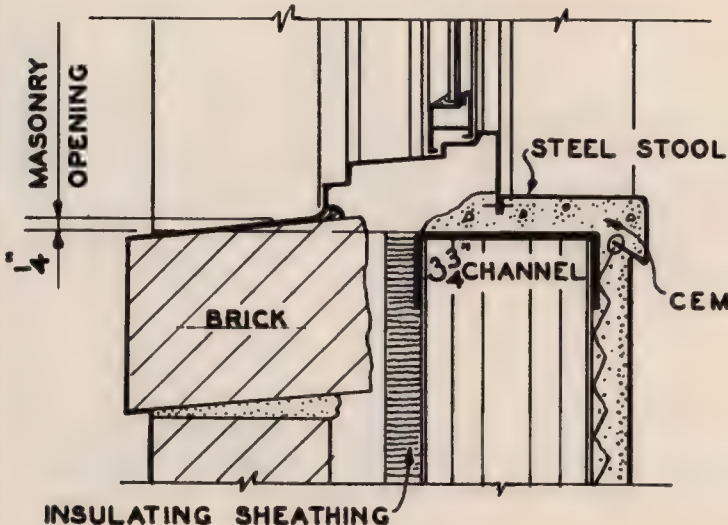




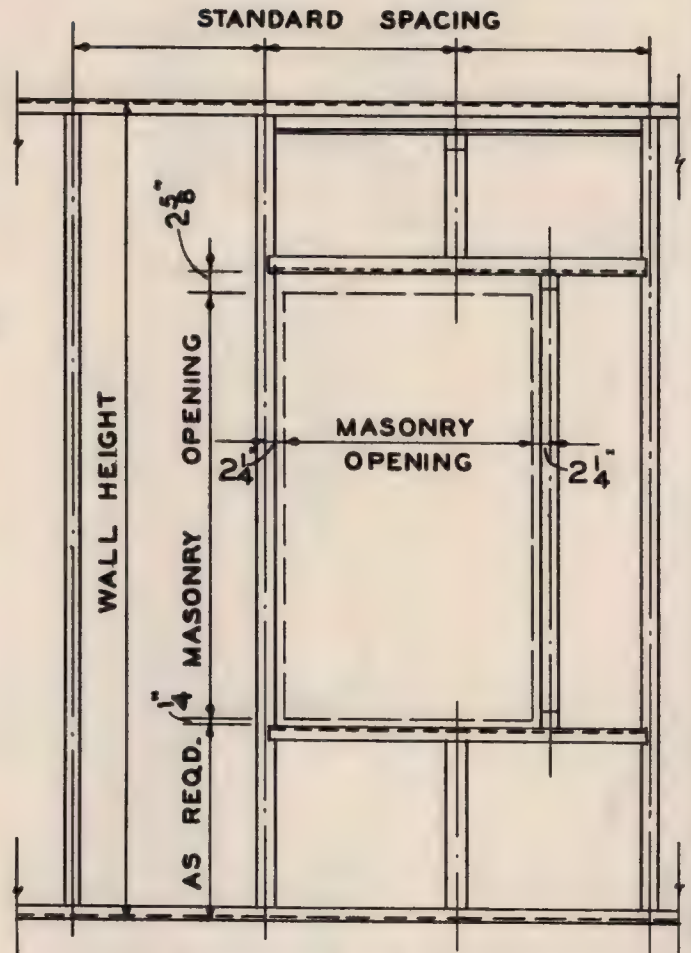
HEAD



JAMB



SILL



LAYOUT OF OPENING

ERECTION -

ATTACH SASH CLIPS TO SASH ON JAMBS ONLY WITH  $\frac{3}{16}$ " BOLTS. ERECT FROM EXTERIOR BEFORE SHEATHING IS APPLIED. SECURE WITH HOLTITE SCREWS OR NAILS. SPECIAL CLIPS TO BE FURNISHED BY STRAN-STEEL. SPACE SASH CLIPS ABOUT 12" O.C.

NOTE- USE SIMILAR DETAIL WITH  $2\frac{5}{16}$ " STUDS.

SCALE 3"=1'-0"

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**WINDOW DETAILS**

STEEL D.H. WDS.  
STEEL TRIM  
BRICK VENEER



# STRAN STEEL

CORRUGATED SHEETING

FLASHING 7" WIDE

WIN. DIM.

3 $\frac{3}{4}$ " CHANNEL

STUD BRACKET

STEEL SASH

HEAD

NAIL

3 $\frac{5}{8}$ " STUD

WIN. DIM. -  $\frac{1}{2}$ "

JAMB

WIN. DIM.

STD. SASH CLIP

3 $\frac{3}{4}$ " CHANNEL

FLASHING

CORRUGATED SHEETING

SILL

STANDARD SPACING

HEIGHT

DIM. +  $\frac{1}{4}$ "

WIN. DIM. -  $\frac{1}{2}$ "

AS REQD.

LAYOUT OF OPENING

ERECTION -

ATTACH ALL CORRUGATED SHEETING AND FLASHING. INSTALL WINDOWS WITH SPECIFIED CLIPS. STD. CLIPS FURNISHED BY SASH CONTRACTOR.

$\frac{1}{4}$ " BOLT & WASHER

HEAD DET.

HOLTITE SCREW & WASHER

JAMB DET.

NOTE - USE SIMILAR DETAIL WITH 2 $\frac{5}{16}$ " STUDS.

SCALE 3" = 1'-0"

**STRAN-STEEL CORPORATION**

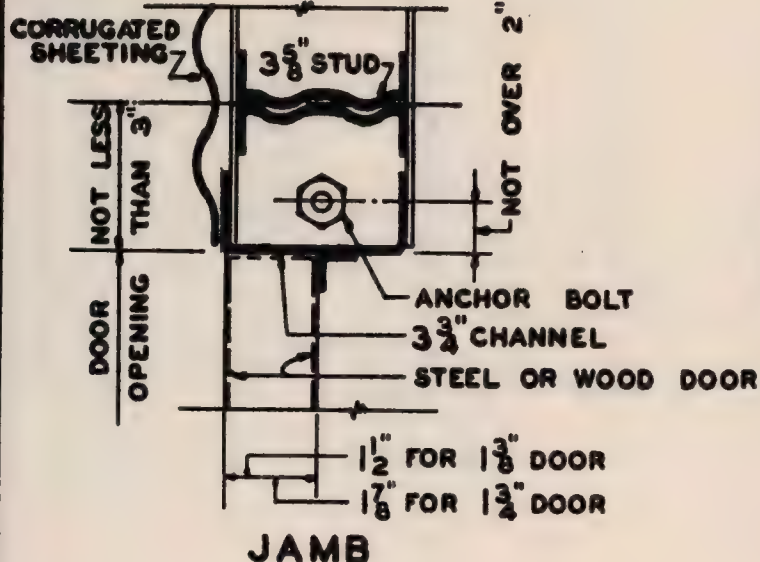
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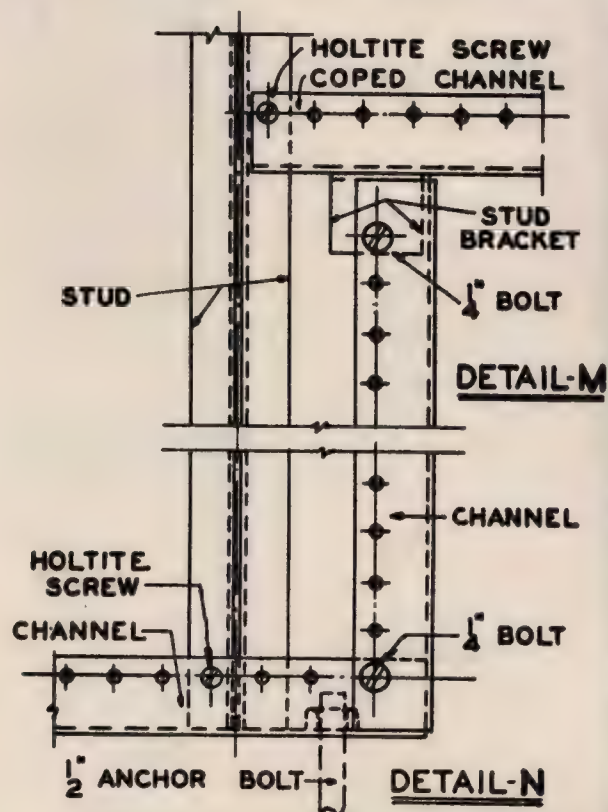
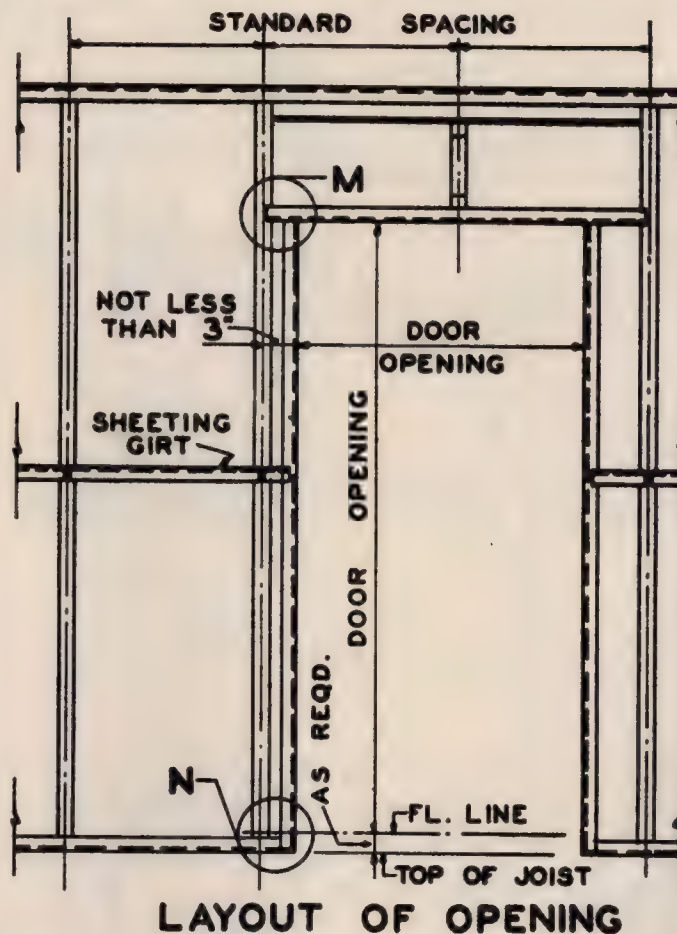
**WINDOW DETAILS**

COMMERICAL SASH  
CORRUGATED SHEET-  
ING OUTSIDE





PROVIDE THREE HINGE PLATES  
WITH EACH FRAME.  
DO NOT USE THIS DETAIL FOR  
DOORS LARGER THAN 3'-6" x 7'-6"  
USE SIMILAR DETAIL FOR  
2<sup>5</sup>/<sub>8</sub> STUDS.



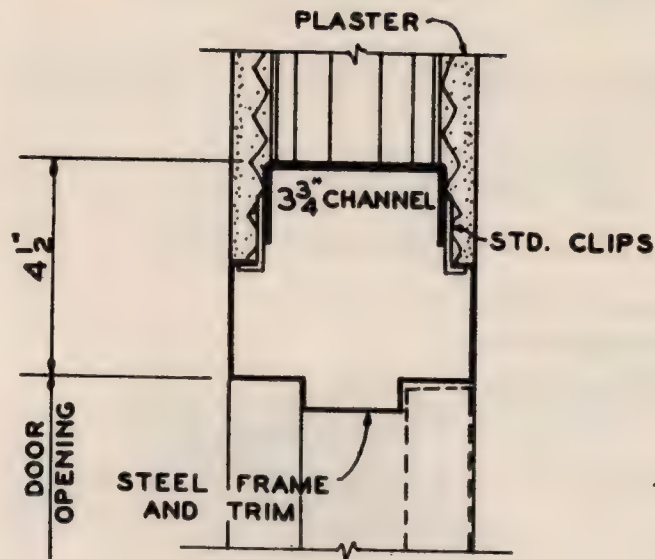
**Ecorse, Detroit 29, Michigan • A Unit of**



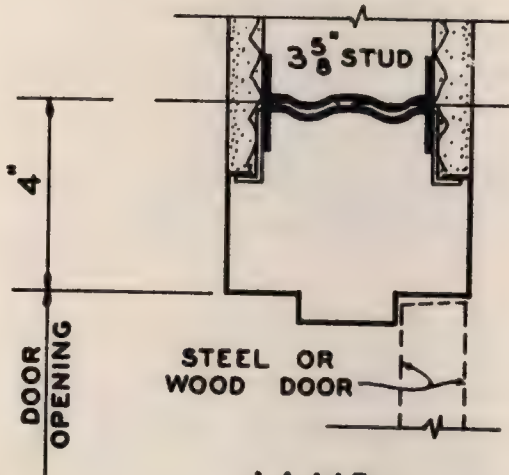
## STRAN-STEEL CHANNEL FRAME



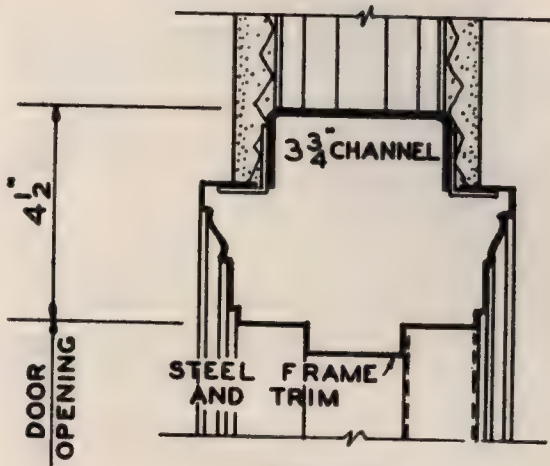
# STRAN STEEL



HEAD

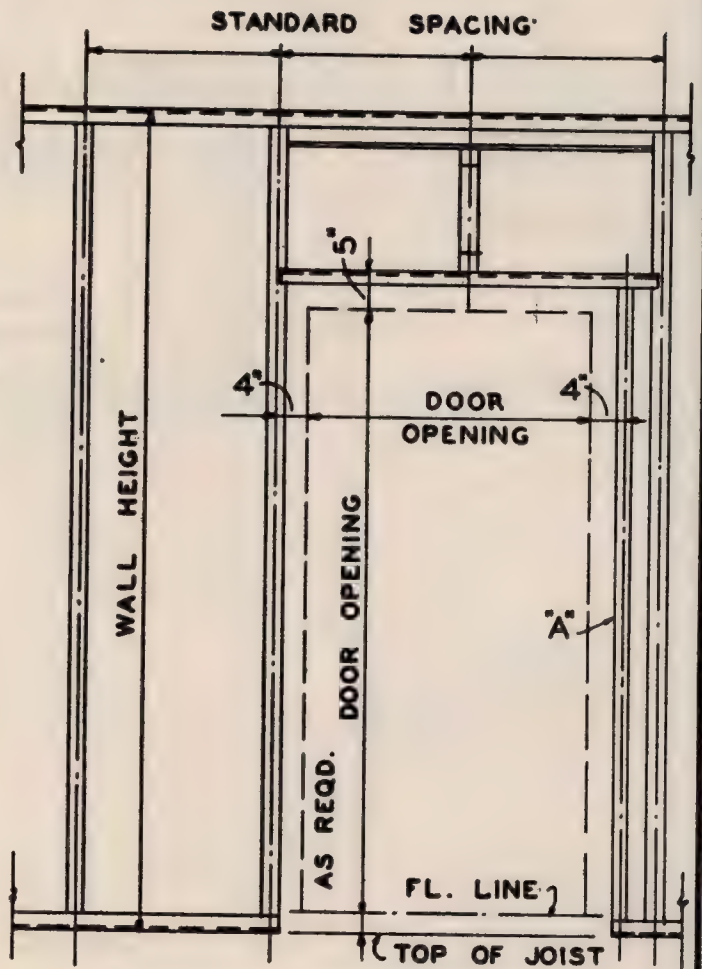


JAMB



HEAD

SHOWING ALTERNATE TRIM  
DETAIL - JAMB SIMILAR



LAYOUT OF OPENING

## ERECTION -

ERECT ALL STEEL  
FRAMING EXCEPT STUD  
MARKED 'A'. INSTALL  
DOOR FRAME & SECURE  
CLIPS WITH BOLTS OR  
HOLTITE SCREWS.  
INSTALL STUD MARKED 'A'

## NOTE -

USE SIMILAR DETAIL  
FOR 2 5/16" STUDS,

SCALE 3" = 1'-0"

**STRAN-STEEL CORPORATION**

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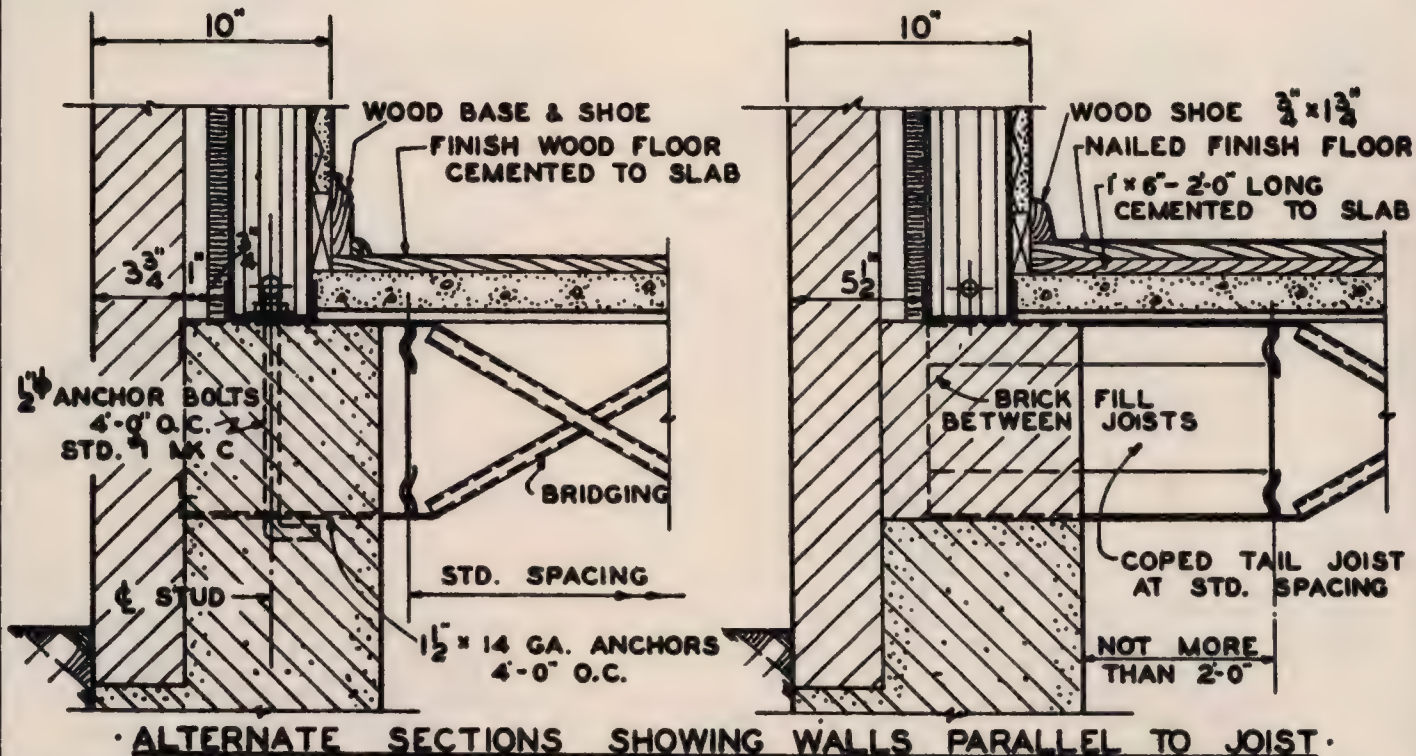
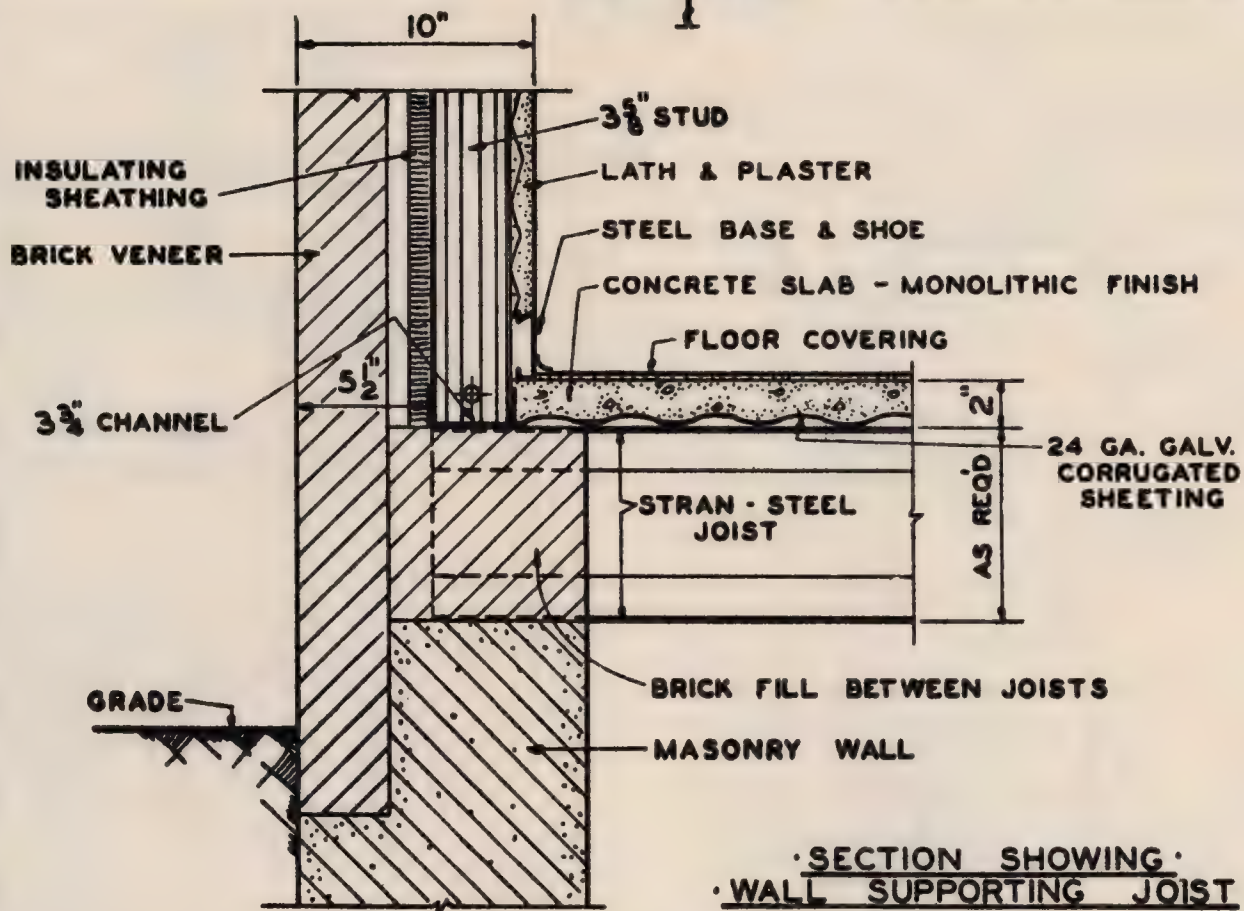
**NATIONAL STEEL CORPORATION**

**DOOR DETAILS**

INTERIOR STEEL  
FRAME & TRIM



# STRAN STEEL



NOTE - USE SIMILAR DETAIL FOR 2 5/8" STUDS.

SCALE 1 1/2" = 1'-0"

STRAN-STEEL CORPORATION

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FOUNDATION DETAILS

BRICK VENEER CONSTRUCTION



# GENERAL REQUIREMENTS FOR MATERIALS USED IN FIRE RATING TABLES

## WALLS AND PARTITIONS

Stran-Steel studs for bearing walls and bearing partitions shall be not less than  $3\frac{3}{8}$ -inches in depth.

The spacing of studs will be governed by the loading, the ratings being for loads developing a stress of not more than 7,270 lb./in.<sup>2</sup> of the net area of the steel studs for bearing partitions and 5,120 lb./in.<sup>2</sup> for bearing brick-veneered walls.

Both bearing and non-bearing walls and partitions require a minimum 2-in. air space.

*Partitions* shall be fire stopped with non-combustible materials at every floor.

### METAL OR WIRE LATH

*Lath*—Minimum Weight=2.5 lbs. per sq. yd.  
for walls and partitions.

*Lath*—Minimum Weight=2.75 lbs. per sq. yd.  
for ceilings.

*Lath* shall be cut from zinc-coated steel sheets or be covered with zinc or rust-inhibitive paint.

*Gypsum Lath* shall comply with the provisions of the American Society for Testing Materials Standard Specifications for Gypsum Lath (ASTM designation C37-42).

Perforated gypsum lath shall have perforations not less than  $\frac{3}{4}$ -inch in diameter, with one perforation for not more than 16 sq. inches of lath surface.

### PLASTER

All plaster proportions are by dry weight of materials. Plaster thickness shall be measured from the face of plaster base except that for metal or wire lath the thickness of plaster shall be measured from the back of lath.

## FLOORS AND CEILINGS

The fire ratings given in the floor and ceiling fire rating table apply to the floor constructions indicated when supported on Stran-Steel joists which are not stressed beyond 18,000 lb./in. in flexure.

*Stran-Steel Floor Joists* shall be spaced not over 30 inches on centers.

*Concrete Top Slab*—The ratio of weight of Portland Cement to that of fine and coarse aggregate combined for the floor slab shall not be less than 1:6 $\frac{1}{2}$ .

*Metal Lath* of approved weight serving as a form for poured top slab may be considered as reinforcement.

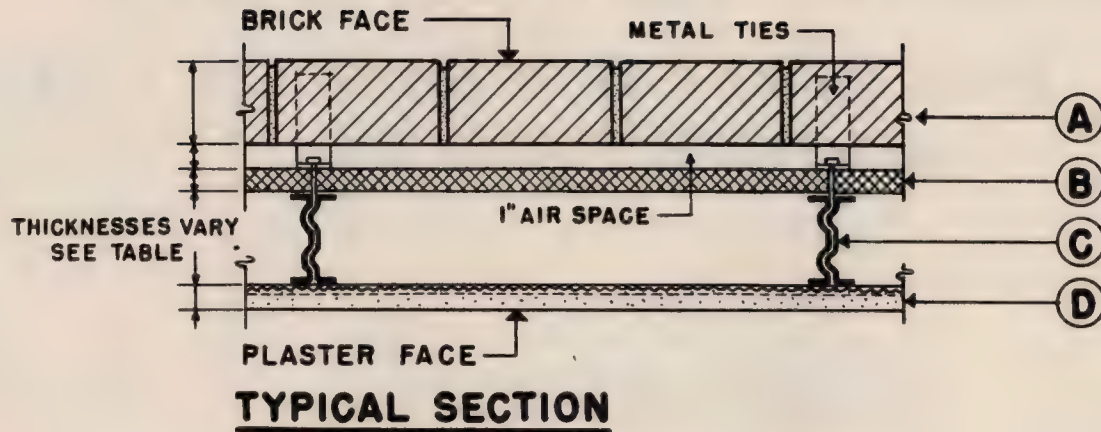
*Plaster* for ceilings shall be applied on metal lath (expanded metal, woven wire, or paper-backed wire lath) of appropriate weight for the spacing of the supports. The lath shall be tied to the supports to give the equivalent of single No. 18-gage steel-wire tied on 5-in. centers.

All plaster proportions are by dry weight.

*Reference:*—"Report BMS-92," U. S. Bureau of Standards.

"Fire Protection through modern building codes."—B. L. Wood





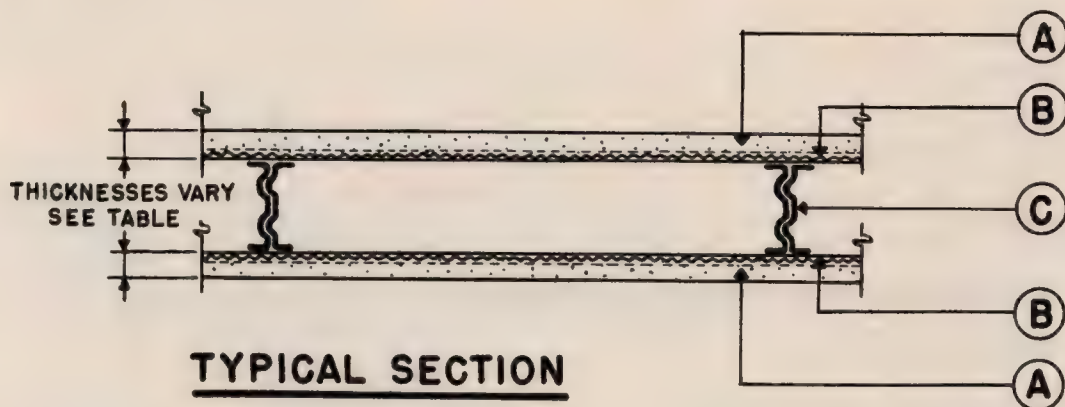
**BRICK VENEERED WALLS - FIRE RATING TABLE**

TYPE NO.	M A T E R I A L S				FIRE RATING	
	(A)	(B)	(C)	(D)	PLASTER FACE EXPOSED	BRICK FACE EXPOSED
1.	3/4" BRICK VENEER ATTACHED TO STEEL FRAME EVERY 5TH COURSE	1" INSULATION BOARD LOCATED AS SHOWN. (FIRE RETARDENT)	STRAN-STEEL STUDS	7/8" SANDED GYPSUM PLASTER (1:2 MIX) APPLIED ON METAL OR WIRE LATH.	1 3/4 HOURS	4 HOURS
2.	3/4" BRICK VENEER ATTACHED TO STEEL FRAME EVERY 5TH COURSE	1" INSULATION BOARD LOCATED AS SHOWN. (FIRE RETARDENT)	STRAN-STEEL STUDS	7/8" VERMICULITE PLASTER OR 1" SANDED GYPSUM PLASTER (1:2 MIX) APPLIED ON METAL OR WIRE LATH.	2 HOURS	4 HOURS
3.	3/4" BRICK VENEER ATTACHED TO STEEL FRAME EVERY 5TH COURSE	1" INSULATING MATERIAL LOCATED ON PLASTER SIDE OF STEEL STUDS ONLY. (FIRE RETARDENT)	STRAN-STEEL STUDS	3/4" SANDED GYPSUM PLASTER MIX { 1:2 FOR SCRATCH 1:3 FOR BROWN COAT APPLIED ON METAL LATH	4 HOURS	4 HOURS
4.	3/4" BRICK VENEER ATTACHED TO STEEL FRAME EVERY 5TH COURSE	1/2" GYPSUM SHEATHING BOARD ON BRICK SIDE OF STEEL STUDS.	STRAN-STEEL STUDS	1/2" PERFORATED GYPSUM LATH WITH 3" WIDE STRIPS OF METAL LATH ON ALL HORIZONTAL JOINTS ON PLASTER SIDE OF STEEL STUDS. PLASTERED WITH 1/2" SANDED GYPSUM PLASTER (1:2 MIX)	2 HOURS	4 HOURS

● REFERENCE: - "REPORT BMS-92", U.S. BUREAU OF STANDARDS  
"FIRE PROTECTION THROUGH MODERN BUILDING CODES" - B.L. WOOD

<b>STRAN-STEEL CORPORATION</b> Ecorse, Detroit 29, Michigan • A Unit of <b>NATIONAL STEEL CORPORATION</b>	<b>FIRE RATING TABLE</b>	
	<b>BRICK VENEERED WALLS</b>	





**PARTITIONS - FIRE RATING TABLE**

TYPE NO.	M A T E R I A L S			FIRE RATING (EITHER FACE)	
	(A)	(B)	(C)	LOAD BEARING	NON-LOAD BEARING
1.	1" UNSANDED GYPSUM PLASTER	METAL OR WIRE LATH	STRAN-STEEL STUDS	2 HOURS*	2½ HOURS
2.	7" 8 UNSANDED GYPSUM PLASTER OR 1" SANDED GYPSUM (1:2 MIX)	METAL OR WIRE LATH	STRAN-STEEL STUDS		2 HOURS
3.	7" 8 SANDED GYPSUM PLASTER (1:2 MIX)	METAL OR WIRE LATH	STRAN-STEEL STUDS		1½ HOURS
4.	7" 8 SANDED GYPSUM PLASTER (1:2 MIX FOR SCRATCH & BROWN COATS)	METAL OR WIRE LATH	STRAN-STEEL STUDS	1¼ HOURS	1¼ HOURS
5.	7" 8 SANDED GYPSUM PLASTER MIX {1:2 FOR SCRATCH 1:3 FOR BROWN COAT	METAL OR WIRE LATH	STRAN-STEEL STUDS	1 HOUR	1 HOUR
6.	7" 8 PORTLAND CEMENT - ASBESTOS FIBER PLASTER MIX {1:2 FOR SCRATCH 1:3 FOR BROWN COAT 3 LBS. ASBESTOS FIBER PER BAG CEMENT	METAL OR WIRE LATH	STRAN-STEEL STUDS		1 HOUR
7.	¾" UNSANDED GYPSUM PLASTER	METAL OR WIRE LATH	STRAN-STEEL STUDS	1½ HOURS	1½ HOURS
8.	¾" SANDED GYPSUM PLASTER (1:2 MIX)	METAL OR WIRE LATH	STRAN-STEEL STUDS	1 HOUR	1 HOUR

\* FOR PARTITIONS LOADED NOT TO EXCEED 5,120 LB/IN<sup>2</sup> OF STUD AREA THE RATING IS 2½ HOURS.

● REFERENCE: - "REPORT BMS-92", U.S. BUREAU OF STANDARDS  
"FIRE PROTECTION THROUGH MODERN BUILDING CODES"-B.L.WOOD

**STRAN-STEEL CORPORATION**

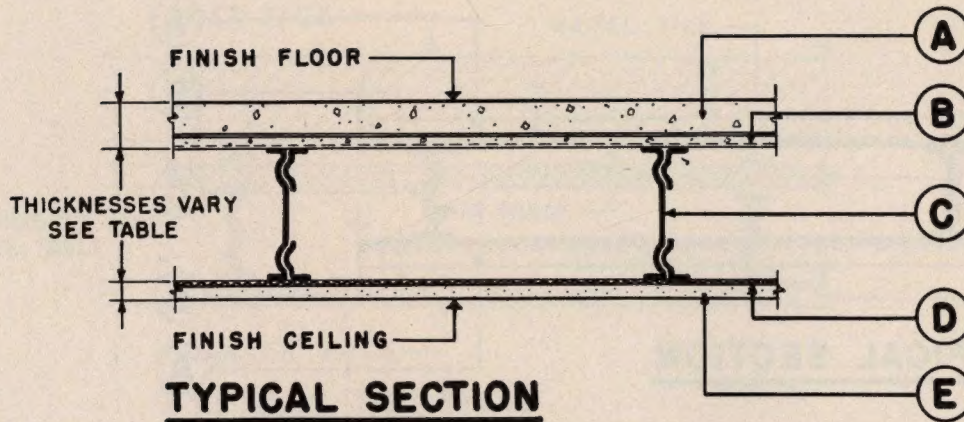
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**FIRE RATING TABLE**

**PARTITIONS**





**FLOOR & CEILING FIRE RATING TABLE**

TYPE NO.	M A T E R I A L S					FIRE RATING
	(A)	(B)	(C)	(D)	(E)	
1.	1" TOP SLAB	METAL LATH	STRAN-STEEL JOIST	METAL LATH	1" GYPSUM-VERMICULITE PLASTER RATIO OF WT. GYPSUM } RANGE TO VERMICULITE } 2:1 TO 3:1	4 HOURS
2.	2" TOP SLAB	METAL LATH	STRAN-STEEL JOIST	METAL LATH	1" UNSANDED GYPSUM PLASTER OR: 3/4" GYPSUM-VERMICULITE PLASTER RATIO OF WT. GYPSUM } RANGE TO VERMICULITE } 2:1 TO 3:1	3 HOURS
3.	2 1/2" TOP SLAB	METAL LATH	STRAN-STEEL JOIST	METAL LATH	7/8" SANDED GYPSUM PLASTER MIX { 1:2 FOR SCRATCH { 1:2 FOR BROWN COAT	2 1/2 HOURS
4.	2" TOP SLAB	METAL LATH	STRAN-STEEL JOIST	METAL LATH	1" UNSANDED GYPSUM PLASTER OR: 3/4" GYPSUM-VERMICULITE PLASTER RATIO OF WT. GYPSUM } RANGE TO VERMICULITE } 2:1 TO 3:1	2 1/2 HOURS
5.	2 1/4" TOP SLAB	METAL LATH	STRAN-STEEL JOIST	METAL LATH	3/4" SANDED GYPSUM PLASTER MIX { 1:2 FOR SCRATCH { 1:3 FOR BROWN COAT	2 HOURS
6.	2" TOP SLAB	METAL LATH	STRAN-STEEL JOIST	METAL LATH	3/4" SANDED GYPSUM PLASTER MIX { 1:2 FOR SCRATCH { 1:3 FOR BROWN COAT OR: 3/4" PORTLAND CEMENT & SAND PLASTER OF LIKE MIX WITH 15 LBS. OF HYDRATED LIME & 3 LBS. OF SHORT ASBESTOS FIBER PER BAG OF PORTLAND CEMENT.	1 1/2 HOURS
7.	3" WOOD 4 SHEATHING SUB-FLOOR	T. & G. FIN. FLOOR WITH INSULATING PAPER BETWEEN	STRAN-STEEL	METAL LATH	CEILING SAME AS SHOWN IN 1 1/2 HOURS RATING ABOVE.	1 HOUR

● REFERENCE: - "REPORT BMS-92", U.S. BUREAU OF STANDARDS  
 "FIRE PROTECTION THROUGH MODERN BUILDING CODES" - B.L. WOOD

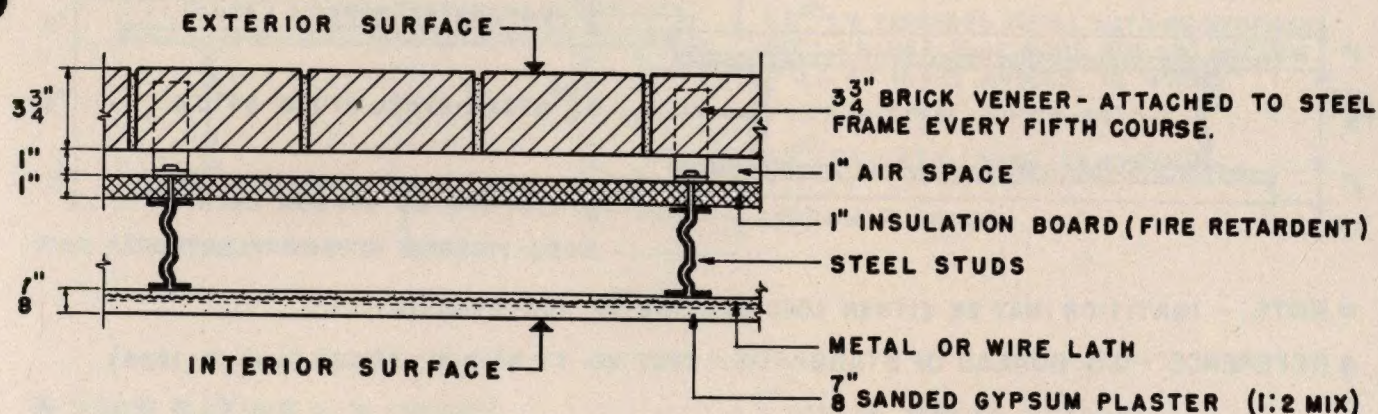
<b>STRAN-STEEL CORPORATION</b> Ecorse, Detroit 29, Michigan • A Unit of		<b>FIRE RATING TABLE</b>	
<b>NATIONAL STEEL CORPORATION</b>		<b>FLOOR AND CEILING</b>	



● FIRE RATINGS:

● INTERIOR SURFACE = 1 $\frac{3}{4}$  HOURS

● EXTERIOR SURFACE = 4 HOURS

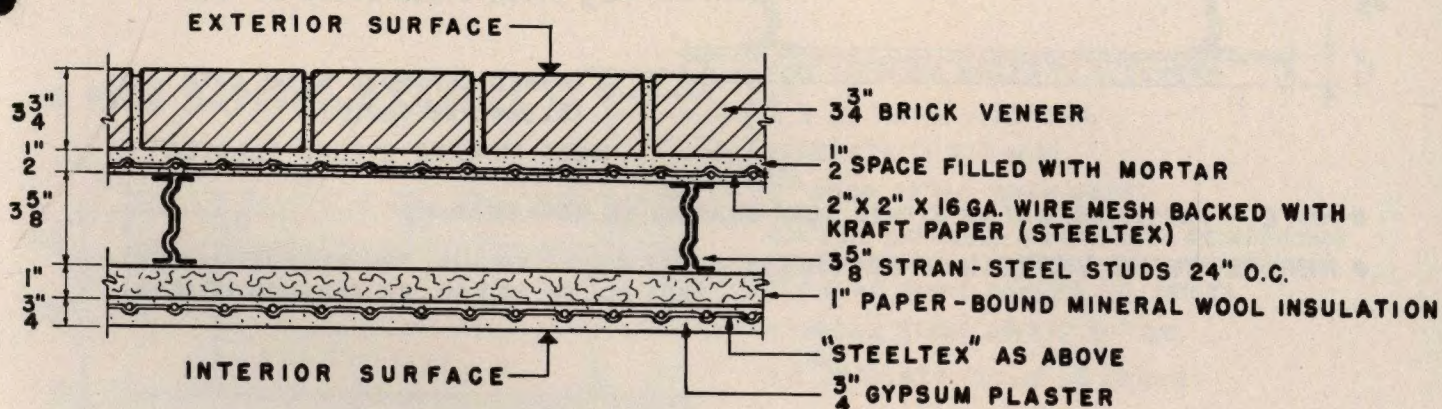


● REFERENCE: - "REPORT BMS-92", U.S. BUREAU OF STANDARDS.

● FIRE RATINGS:

● INTERIOR SURFACE = 4 HOURS

● EXTERIOR SURFACE = 6 HOURS



● REFERENCE: - U.S. BUREAU OF STANDARDS

TEST NO. B 21 (MARCH 24, 1941) - SUPPLEMENTARY TO  
T.G. 3619-18; FR 1188 (AUG. 12, 1938)

● NOTE: - "STANDARD FIRE TEST" REQUIRES THAT A TEMPERATURE OF 1575° F SHALL BE REACHED IN  $\frac{1}{2}$  HOUR; 1900° F IN 22 HOURS, AND THIS TEMPERATURE MAINTAINED FOR DURATION OF TEST.

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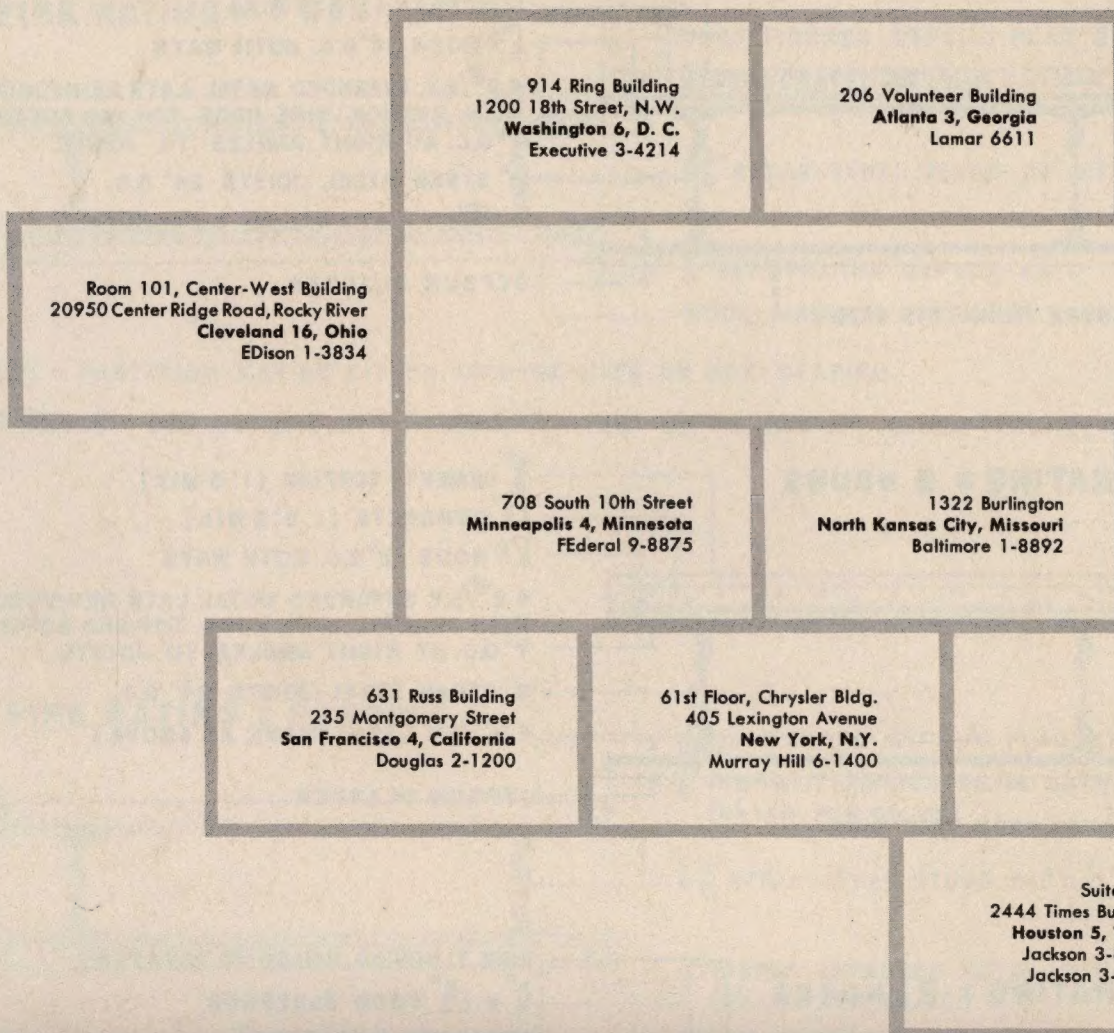


**CORPORATION**

● FIRE RATING ●

BRICK VENEERED  
WALL CONSTRUCTION





3 3/4" CHANNEL

2 1/2" CHANNEL

9" JOIST

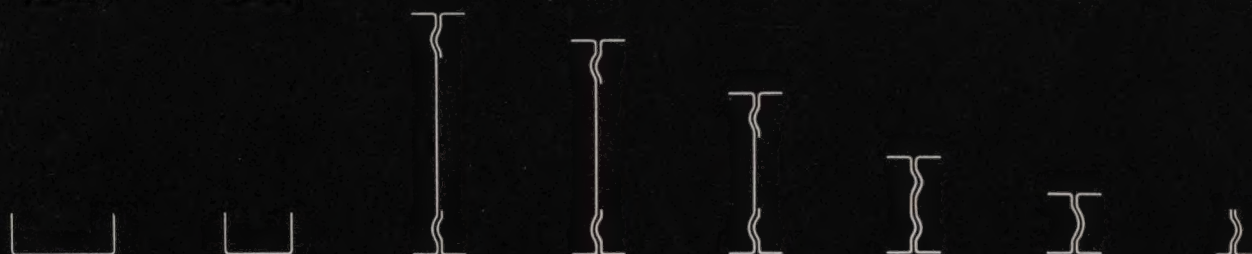
8" JOIST

6" JOIST

3 5/8" STUD

2 5/16" STUD

1 11/16" STUD



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**A UNIT OF NATIONAL STEEL CORPORATION**



**LADUE SUPPLY INC.**

CEMSTEEL BLDGS.

8870 LADUE ROAD

CLAYTON, MO. PA. 5-6490

Ecorse, Detroit 29, Michigan



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